DEPARTMENT OF THE INTERIOR.

BULLETIN

OF

THE UNITED STATES

GEOLOGICAL AND GEOGRAPHICAL SURVEY

OF

THE TERRITORIES.

F. V. HAYDEN,
U. S. GEOLOGIST-IN-CHARGE.

1879-'80.

MEARNS
COLLECTION

VOLUME V.

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WASHINGTON:
GOVERNMENT PRINTING OFFICE.
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PREFATORY NOTE.

U. S. GEOLOGICAL AND GEOGRAPHICAL
SURVEY OF THE TERRITORIES,
Washington, September 20, 1880.

Bulletin No. 4, series of 1879–'80, issued September 30, 1880, completes Volume V; and with this number are issued index, title-page, table of contents, and list of illustrations for the whole volume. The separately published numbers should be preserved for binding, as there is no issue of the Bulletins in bound volumes from this office, and as back numbers cannot always be supplied to complete deficient files.

In concluding the fifth volume of Bulletins, a word regarding the origin and progress of this publication will not be out of place. The issue began in 1874, when it was found desirable to establish more ready means of communication with the public and with scientific bodies than the regular Reports of the Survey afforded; the design being to publish, without the delay incident to the appearance of more elaborate and extended articles, such new or specially interesting matter as should be contributed to the general results of the Explorations under my charge by the members or the collaborators of the Survey. The practical importance of prompt measures in such cases is well recognized, and sufficiently attested by the success which the Bulletins have achieved.

The First and Second Bulletins, which appeared in 1874, are separately paged pamphlets, without ostensible connection with each other or with subsequent ones, but together constituting a "First Series" of the publication. Bulletins which appeared in 1875, being those of a "Second Series" and six in number, are continuously paged. With No. 6 were issued title, contents, index, &c., for all the numbers of both "series" which had then appeared; the design being that these should together constitute a Volume I, in order that the inconvenient distinction of "series" might be dropped.

With Bulletin No. 1 of 1876 the publication was established as an annual serial; the four consecutively paged numbers of that year constituting Volume II.

The four Bulletins of 1877 constituted Volume III, which compared favorably with its predecessors in the extent, variety, and importance of its contents, and was greatly improved in typography and general appearance.

The four Bulletins of 1878 formed Volume IV, which maintained the same high standard of excellence.

Bulletins Nos. 1, 2, 3 of 1879 and No. 4 of 1880 complete Volume V, which is herewith offered to the public.

The sixth volume having been ordered by the Department, the Bulletins will continue to be issued at convenient irregular intervals, as material may come to hand; the strictly serial character of the publication being maintained. The actual date of issue is given on the temporary cover of each, as it is important to fix with precision the appearance of the successive numbers of a periodical in which new genera and species are described.

This publication, answering fully the special purpose for which it was established, is regarded as one of the most important means to the main ends which the Survey has had in view. It has acquired a character and standing which render it favorably comparable to the regular "Proceedings" or other similar publications of learned bodies of this country or Europe. Its scope includes the whole range of the subjects for the investigation of which the Survey was conducted, and the appearance of which in this connection has in no way interfered with the formal Reports of the Survey. The volumes already issued have contained articles upon Archæology, Ethnography, Linguistics, Geology, Topography, Geography, Palæontology, and Natural History in general, suitably illustrated with plates, cuts, and maps; and no effort has been spared to maintain a high standard of excellence.

The thanks of the Survey are due to Dr. Elliott Coues, U. S. A., for his careful and able conduct of the periodical.

F. V. HAYDEN,
United States Geologist.

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NOTE.—Plates I and II, accompanying Article I, were not issued in place, having been delayed until Bulletin No. 2 was issued. They should be bound in place at end of Riley and Monell's Article, opposite page 32, each being faced by its explanatory leaf.

DEPARTMENT OF THE INTERIOR.
UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY.
F. V. HAYDEN, U. S. GEOLOGIST-IN-CHARGE.

BULLETIN

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THE UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

VOLUME V.....NUMBER 1.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
February 28, 1879.

BULLETIN

OF THE

UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

VOLUME V. 1879. NUMBER 1.

Art. I.—Notes on the Aphididæ of the United States, with descriptions of species occurring West of the Mississippi.

By Chas. V. Riley and J. Monell.

PART I.

BIOLOGICAL NOTES ON THE PEMPHIGINÆ, WITH DESCRIPTIONS OF NEW SPECIES.—C. V. RILEY, Ph. D.

The object of the present paper is to set forth some interesting biological facts relating to the gall-making *Pemphiginæ*,* and which were presented in abstract at the late meeting of the American Association for the Advancement of Science. These facts have a special interest just at this time on account of the close relationship between the insects of the sub-family in question and the notorious Grape-vine Phylloxera (*Phylloxera vastatrix*).

The life-history and agamic multiplication of the Plant-lice (*Aphididæ*) have always excited the interest of entomologists, and even of anatomists and embryologists not especially given to the study of insects. The life-history, however, of the gall-making species belonging to the *Pemphiginæ* has baffled the skill of observers more than that of any other group. All of the older writers, in treating of the different gall-producing *Pemphiginæ* of Europe, have invariably failed to trace the life-history of any of the species after the winged females leave the galls, and, with few exceptions, have erroneously inferred that the direct issue from the winged females hibernates somewhere. The most recent production on the subject is a paper published the present year in Cassel, Germany, by Dr. H. F. Kessler, on the life-history of the gall-making Plant-lice affecting *Ulmus campestris*.* This author, by a series of ingenious experiments, rightly came to the conclusion that the insects hibernate on the trunk; but he failed to discover in what condition they so hibernate.

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* This term is used in the sub-family sense, in accordance with most common usage, and not in the tribal sense, as employed by Buckton in his Monograph of British Aphides, 1875.

M. J. Lichtenstein of Montpellier, France, who has paid much attention to these insects, was led to the belief, announced in various publications† during the year 1877, that the European species inhabiting Elm and Poplar migrated to the roots of grasses and there hibernated. He was doubtless misled by the great general resemblance between all the species of this sub-family in the immature and apterous stages. In a letter dated December 25, 1877, I informed him that I had discovered that the sexed individuals of our Elm species inhabited the bark, to which the female consigned her single winter egg, and that his theory was altogether inconsistent with this fact and with what Derbès had discovered of *Pemphigus cornicularius* affecting Firs.‡ With this clue my friend has done good service the past season, by correctly tracing the life-history of several species, and showing that there are no such migrations as he assumed, from the trees in question. Indeed, nothing but the most thorough and absolute proof can establish the fact of any such migration. Species of the same genus often so closely resemble each other that they are more readily distinguished by their mode of life, or by the galls they produce, than by structural or describable differences; and this holds particularly true of the immature or apterous stages. This fact, taken in connection with what is here recorded and what is already known of the habits of the sub-family, renders it extremely improbable that any of the species subsist at one time on one plant and habitually change, by migration, to another of a totally different nature. Stranger things happen in nature; but until M. Lichtenstein experimentally proves the accuracy of his conclusions, I must reject his theory.

Led by previous investigations into the habits of the Grape Phylloxera, I discovered, in 1875, that some of our Elm-feeding species of *Pemphiginæ* produce wingless and mouthless males and females, and that the female lays but one solitary impregnated egg, just as in the case of Phylloxera. Continuing my investigations, especially during the present summer (1878), I have been able to trace the life-history of those species producing galls on our own Elms, and to show that they all agree in this respect, and that the impregnated egg produced by the female is consigned to the sheltered portions of the trunk of the tree, and there hibernates—the issue therefrom being the stem-mother,§ which founds the gall-inhabiting colony the ensuing spring. Thus the question as to what becomes of the winged insects after they leave the galls is no longer an open one. They instinctively seek the bark of the tree, and there give birth to the sexual individuals, either directly or through intervening generations.

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* DieLebensgeschichte der auf Ulmus campestris vorkommenden Aphiden-Arten.

† Stettiner Ent. Zeit. 1877, p. 489, &c.

‡ Ann. d. Sc. Nat. Paris, October, 1871.

§ I adopt this term as a literal translation of the German "Stamm-mutter," and as meaning the ancestress or progenitor of all succeeding generations until the impregnated egg is produced and another cycle commences.

It is my purpose in a subsequent paper to go more fully into a consideration of the habits and classification of this interesting family of Plant-lice; but my present object will best be accomplished by giving a full account of the two commoner gall-making species found upon the American Elm, with less complete accounts of some other species. It will be seen by the facts recorded, and by the descriptions, how futile all attempts must be to establish anything like a natural system of classification, whether the number of antennal joints, the character of wing-venation, or the habits be considered; and the lesson I would draw from the study of these minute insects is the same that must be drawn by all naturalists who thoroughly study any one group, viz., that any system of classification will be unsatisfactory, except on the hypothesis that it is purely a matter of convenience. We find extreme variation in the number and proportions of antennal joints in the different stages of the same species. We find a great tendency to variation even in the pterogostic characters; and, finally, there is not even unity of habit in the species of the same genus. The deflexed or horizontal position of the wings has no value in this sub-family, because most of the species carry their wings horizontal while yet in their galls or for some time after issuing from the pupa. That all of the insects of this sub-family possess, however, at least one feature in common with the species of Phylloxera so far known, namely, the mouthless, wingless, and generally degradational nature of the sexual individuals, and the production by the female of a solitary, impregnated egg, there can be little doubt, since I have traced these sexual individuals and this impregnated egg, not only in the cases indicated in this paper, but further in *Schizoneura Rileyi* (Thos.) and *Schizoneura lanigera* (Hausm.); while M. J. Lichtenstein, as already stated, has discovered them in several of the European species of this sub-family. Another feature common to the whole sub-family, though by no means peculiar to it, is the flocculent exudation from the body and the absence of bright coloration, the winged females having, all of them, a dull, dark ground-color of head and thorax. The front wings have invariably a fold or thickening of the posterior marginal vein in the region of the first discoidal; and the hind wings are correspondingly produced on the costal margin and armed with hooklets that catch in the fold in flight. These are features common to all *Aphididæ* known to me; but their prominence or faintness often has specific value, and the angle on the hind wing may, for descriptive purposes, be called the "hook-angle."

SCHIZONEURA AMERICANA, n. sp.

[Curling and gnarling the leaves of the White Elm (*Ulmus americana*), forming thereby a sort of pseudo-gall. The curl made by a single stem-mother in the spring takes the pretty constant form of a rather wrinkled roll of one side of the young leaf; but, according as there is more than one stem-mother, or as several contiguous leaves are affected, the deformation assumes various distorted shapes, sometimes involving quite large masses of the leaves.]

BIOLOGICAL.

There is a good deal of irregularity in the time of appearance of the different generations, but the general history of this species, as I have observed it for several years, is herewith given. There is much greater difficulty in fully tracing the life-history of one of these small creatures than might be supposed. They languish in confinement and ill bear handling. To trace their growth and movements in a state of nature requires vigilance and perseverance, and a great deal of time; and I have been fortunate, in my studies of this and the next species, in securing the patient aid of Miss M. E. Murtfeldt of Kirkwood, Mo., a lady to whom I have already had repeated occasion to express my indebtedness.

If, during the winter, we carefully examine the cracks and crevices of an American or White Elm that was badly infested with this leaf-curling species the previous summer, we shall be pretty sure to find its impregnated egg—a minute, dull-yellowish, ovoid object, about 0.5^{mm} long (Fig. 1, *a*), either free or still more or less effectually covered with the parent's dry skin, which faintly shows the insections that characterized the living female. The same spring influences that cause the leaf-buds to swell and open, likewise induce the hatching of this winter egg, and the little creature that issues from it instinctively crawls to the more terminal twigs and branches, and settles upon the first tender leaflet it meets with. It constitutes the stem-mother, or *first generation*, and, stationing itself on the under surface of the leaf, very soon causes the same to swell and curl by the irritation and punctures of its beak. The curl is usually from the lateral edge, and the more normal form it takes is shown at Fig. 1, *c*. It is, however, very irregular, and takes on many different forms, according as it is produced by one or several stem-mothers settling on the same leaf, and as it affects a portion of one leaf only or embraces several from the same bud. At first, pale yellowish-red, with dark members, the stem-mother increases in size more or less rapidly, depending to some extent on the development of the leaf. Moving about in her curled house, within which she is destined to live and die, this stem-mother goes through her last moult, and attains maturity about the twelfth day from the time of hatching. This period may be lengthened by unfavorable weather, as an indefinite period of lethargy, both of plant and insect, may ensue, after hatching, if the temperature be too low. The number of molts I have not definitely ascertained, but from analogy there will be three. Having attained maturity, she commences peopling her pseudo-gall with young at the rate of about one every six or seven hours, according to temperature, increasing in bulk and prolificacy from day to day, until by the early part of May, in the latitude of Saint Louis, she has attained her fullest development, and soon perishes. She may attain to nearly four millimetres in length, and, with greatly swollen body, be almost as wide (Fig. 1, *b*). Her immediate issue, or the *second generation*, are like her in many respects, but never grow to be quite so large. The individuals of this generation soon accumulate in great numbers around her, and in their turn commence to bring forth young, some remaining within the original curl, others scattering to found new colonies. Their issue, or the *third generation*, show certain marked structural differences from the first (see description), and are destined to become winged.

During most of the month of May, we may find, where large clusters of leaves are affected, the few more or less exhausted stem-mothers, and these second and third generations in every stage of development. As the lice increase in numbers, the leaves no longer protect them, but present on both sides multitudes of busy atoms—livid, old and paler young—those with wings and those getting wings—interspersed with white exuviæ, cottony secretion, and globules of pearly liquid. At the same time, in single curls of more terminal leaves, we may find the second generation of wingless mothers surrounded by smaller colonies, all of which will become winged. The winged females (Fig. 1, *d*) are short-lived, bringing forth a dozen or more pseudova at average intervals of about half an hour. The glossy pellicle that compresses all the members of their newly-born issue is ruptured very shortly after birth, and is worked off in the course of about ten minutes. These facts are easily ascertained by confining the winged mother, but the exact positions to which the pseudova are naturally carried I have not been able to definitely learn; but we may rest pretty confident that they are consigned both to the leaves and to the twigs. The young lice, forming the *fourth generation*, are very active, running swiftly in all directions. In color, they are at first of a pale and bright red, but soon acquire a brownish tint. In general appearance, they resemble the young from the stem-mother. The beak is very long, thickened at the end, which always projects beyond the tip of the abdomen, and terminates in a sickle-like point. Experiments made by attaching and confining these young to the trunk of the tree show that they do not flourish thereon, but naturally crawl out to the more tender, terminal leaves, which they immediately begin to curl. They may be found scattered over an infested tree, with their beaks for the most part inserted in the tender leaf-stem or in the midrib on the under side, the leaf in such case already beginning to show the effect of the poisonous puncture. They are, however, able to sustain themselves on the tender bark of the twigs alone, and may be found nearly full-grown, there exposed to view and enveloped in the white cottony matter, which brushes off at the slightest touch. When full-grown, they commence reproducing, and their progeny, under favorable circumstances, becomes exceedingly abundant. The growing points of the tree are affected with larger or smaller colonies, crowding and covering both the surfaces of the leaves, the petioles, and the stem. I have known young Elm trees to be so thoroughly covered with these lice, in the earlier part of June, that not a single leaf was unaffected, and upon giving the tree the slightest jar there would be a perfect shower of the liquid globules excreted by the lice. At this season of the year, when the lice are thus numerous, they may be found during the heat of the day actively crawling over all portions of the tree—a veritable migration, necessitated by the want of sufficient succulent leaves, but evidently premature, and destined to be the death of the individuals participating in it, excessive multiplication here, as in all other cases, obliging the destruction of the excess. While the individuals thus wandering are mostly the younger ones, the migrating instinct seems sometimes to possess individuals of all ages, especially where the tree is badly affected; and that they perish is proved by the mass of dead lice which in such a case may be found around the base of a tree. So far as I have been able to learn by confining specimens of the *fifth generation*, which is very similar to the fourth, but with shorter promuscis, the fifth reproduces like the fourth without acquiring wings. The individuals of the *sixth generation*, on the contrary, all acquire wings, the pupa being active, with but a small amount of flocculence, confined to the posterior part of the body The winged lice of this sixth generation abound during the latter part of June and the early part of July. They resemble those of the third generation, except that they are perhaps on the average somewhat smaller and paler, and less prolific. They instinctively congregate on the bark, and consign to the crevices, and sheltered parts thereof, their young, which, as in the fourth generation, are enveloped in a sort of pellicle. These young also resemble the young of the fourth generation in general form, but have very short and stout beaks. Instead of being active, they are quite sluggish, congregating in clusters in the sheltered portions of the bark, and being essentially bark-feeders. The color soon inclines strongly to orange or salmon, and, after two or three days of sluggish existence, they shed their skin, and become more active, penetrating more deeply into the interstices of the bark, and huddling together in groups of various sizes. They are now of a pale buff, or, more correctly, salmon color, the surface at first smooth and polished, but becoming in some instances slightly pulverulent. Simulating closely the color of the bark, and being quite small, they are not easily detected, unless in great numbers. A careful examination shows that they have entirely lost the beak, and that they consist of both males and females, the females being the larger, and the males showing the genital characters given in the description. They live grouped together for several days with little motion, the female (Fig. 1, *c*) increasing in size by the enlargement of the single egg contained in her body. Both soon perish, leaving among their shrivelled bodies the shining, reddish-brown winter egg, either partially or entirely covered by the parent's skin.

On the 16th of June, 1877, I met with an isolated tree at Malvern, Iowa, belonging to Mr. H. K. Follett, which had been very badly infested with this species. The winged individuals crowded the trunk, and had perished in such quantities around the base of the tree as to lie in a matted mass three or four inches thick, being greedily devoured by their numerous enemies. One could not break off the smallest piece of the bark without finding the exposed interstices crowded with the salmon-colored sexual individuals.

Among the more prominent of the natural enemies of this species, I have noticed, of Coleoptera, *Coccinella 9-notata*, *Coccinella sanguinea* (*munda*) Say, *Hippodamia convergens*, and several species of *Scymnus*. I also found feeding upon them the perfect beetle of *Podabrus modestus*, and the Hemipterous *Cyllocoris scutellatus*, Uhler, and *Capsus linearis*, Beauv. A Lepidopterous inquiline, namely, the larva of *Semasia prunivora*, Walsh, is also quite common within the curled leaves, feeding both on the lice and on the substance of the leaf. A large green *Syrphus* larva and several *Chrysopa* larvæ also prey upon them.

DESCRIPTIVE.

SCHIZONEURA AMERICANA (Fig. 1).—*Impregnated egg* 0.5^{mm} long, gamboge-yellow, inclining to brown in color, with no especial external sculpture.

First generation.—Stem-mother: Pale yellowish-red, with black members when first hatched; the red deepening and becoming purplish or livid with age. When mature, averaging 3.5^{mm} in length, globose or pyriform, with subobsolete honey-tubes and six dorsal rows of darker piliferous and tuberculous spots. Antennæ 5-jointed, joint 3 more than equalling 4 and 5 together in length.

Second generation.—Differing in no essential respect from the preceding, except that the individuals do not attain so great a size. Bright brownish-red when born, they soon become livid brown.

Third generation.—Mature, winged female: Alar expanse 5 to 5.6^{mm}. Body dusky, the abdomen slightly reddish; legs either dusky or yellowish-red. Antennæ as long as head and thorax together, dusky, rarely yellowish, not pilose, but with a few short setous points; 6-jointed, the 1st and 2d joints slightly bulbous; 3d either surpassing or equaling in length the 4th, 5th, and 6th together, which are subequal; the terminal joint usually the shortest, the apical sub-joint being normal, and in some cases sufficiently constricted to resemble an additional joint; joints 3, 4, and 5 rather distinctly annulated, the constrictions being generally quite deep, and producing a moniliform aspect, there being on an average 22 such on joint 3. Tarsi with the basal joint distinctly separated into a lobe, the claws strong, and in length twice the diameter of the tarsus. Wings hyaline: front pair with the veins becoming obsolete at tips; stigma subhyaline, either of a yellowish tinge or somewhat dusky; stigmal vein starting from the middle of the stigma and normally curved; cubital vein obsolete for nearly one-third its length, the furcal forming with it almost a point; the terminal distance between first and second discoidals equal to about five times that between their bases (often rather more); terminal distance between furcal and cubital and second discoidal veins subequal, that between stigmal and furcal slightly shorter, that between second and first discoidal one-third greater, and about equal that between stigmal and tip of stigma. Hind wings with the subcostal vein almost straight, there being no curve where it gives off the discoidal veins, which are obsolete at their extreme base, and not confluent with it. [The wing-venation is very constant. Out of nearly 100 specimens examined, I have found only an unusual shortening of the cubital in two individuals.] The larva and pupa in this third generation differ from the winged insect in being more reddish and in having the antennæ ringed with less distinct constrictions, in the legs being paler, in the claws being stronger, and in the basal joint of tarsus being more connate with the terminal joint. They have a distinct annulated elevation at each side posteriorly—a sort of pseudo-honeytube. When first born, they are of a pale dull yellow, and the antennal joints are more nearly subequal in length.

Fourth generation.—That from the first winged females: Differs from the preceding in the promuscis being much longer, in the antennæ having but five joints, the third being somewhat longest and the first the shortest, but all often being of much more nearly equal length, with no annulated constrictions. The color is more decidedly orange. When newly hatched, the thickened end of the promuscis often extends one-half the length of the body beyond anus. The legs are also long and stout, and the basal joint of the tarsus is distinct, but not separated. The capitate hairs are obsolete. It is born with an enveloping pellicle or pseudovum, and though of a bright red with pale legs at first, soon becomes brownish, with dark members.

Fifth generation.—The counterpart of the second.

Sixth generation.—Second winged: Resembles the third, but usually rather lighter-colored, with the wing-veins, the spinous armature of surfaces, and the constrictions of antennæ less strong, and with the third joint of antennæ rather less in length than the terminal three together.

Seventh generation.—True sexual individuals: Born within an egg-like pellicle. With stout promuscis reaching to between middle and hind coxæ; the antennæ 5-jointed, with the joints subequal. Bark-feeding. Orange in color. Undergoing one moult, and then being at once distinguished from the other forms by the brighter orange-yellow color, the rudimentary mouth, the more simple eyes (composed of three facets), by the shorter, 5-jointed antennæ, the joints subequal in length; by the shorter legs, with smaller claws to the tarsi, and more distinct terminal capitate hairs, or pulvilli. The skin is transparent, the body filled more or less with fatty globules. The female is nearly pyriform, and averages 0.4^{mm} in length. A single egg is visible through the translucent skin, and, according to age, occupies more or less of the whole of the body. The male is narrower and smaller, the penis being bulbous, with a couple of spine-like genital clasps.

This species is very closely allied to the European *S. ulmi* (Linn.), and until I was able to compare it with actual specimens, I was in doubt whether to look upon it as a mere variety or a distinct species. Judging from Kessler's figure and description of the European leaf-curl, and by a figure sent me by Mr. Buckton, it differs from ours, 1st, in bending upward, *i. e.*, the stem-mother settles on the upper instead of the under side of the leaf; 2d, in having a number of small, rounded or verrucose swellings. These differences in their dwellings are strongly presumptive of structural differences in the insects themselves; and the fact that *S. americana* does not attack the European Elms, either in Shaw's Botanical Gardens at Saint Louis, or in the grounds of the Department of Agriculture, points in the same direction. Differences are indeed easily enough made out if we take the more or less imperfect descriptions and figures of *ulmi*,* but are less apparent when the actual specimens are compared. The following are the more important differences, least subject to variation, between the winged females of *ulmi* as compared with those of *americana: ulmi* is a longer-winged species, averaging 7.3mm in expanse; the abdomen, wing-veins, and stigma are darker; the terminal distance between 1st and 2d discoidals slightly greater; the 3d joint of antennæ is relatively longer; the annulations are less deep and more numerous (those on 3d joint averaging 30); joints 5 and 6 are smoother, *i. e.*, without annulations, but they are more setous; joint 5 is shorter than 4; the apical, narrowed part of 6th joint is relatively longer and more pointed; the subcostal vein of hind wings is less straight; the cubital vein is often continuous to very near the subcostal, while I have not found any tendency of the kind in *americana*, the tendency being in the opposite direction, or to become shorter; the 2d discoidal of hind wings shows a tendency to fork; the hooklets on costa of hind wings are 3 in number, while in *americana* there are normally 4;* the legs are more setous.

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* Koch's figure (evidently copied by Kessler) is faulty in several respects, and fails to indicate the hook-angle of hind wings, or the corresponding thickening of front wings, a fault that is, however, common to most of Koch's figures.

COLOPHA† ULMICOLA (Fitch).

[Forming cock's-comb-like galls (Fig. 2, *a*) on the upper surface of the leaves of *Ulmus americana*, the galls appearing with the opening of the leaves, and turning brown and black in late summer.]

Another very common gall, which may be called the Cock's-comb Elm Gall (*ulmi-ulmicola*), is also found on the White Elm, and particularly, as in the case of the previous gall, on young trees. It was well described by Fitch‡ as an "excrescence or follicle like a cock's comb, arising abruptly on the upper side of the leaves, usually one inch long and $\frac{1}{4}$ of an inch high, compressed and its sides wrinkled perpendicularly and its summit irregularly gashed and toothed; of a paler green color than the leaf and more or less red on the side exposed to the sun; opening on the under side of the leaf by a long slit-like orifice; inside wrinkled perpendicularly into deep plates." The gall is always found between two of the branching parallel veins, and those between which it grows are generally drawn closer together than the rest. The corrugations and roughness, so characteristic of this gall, evidently result from the lesser susceptibility of the minute transverse veins to swell, compared with the more succulent tissue of the leaf. There is always a certain hoariness around the mouth of the gall below, while the base of the upper part is always contracted and compressed.

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* These hooklets get so easily broken off that they are not to be relied on; yet the normal number on most of the *Pemphiginæ* I have examined is 3, while in *Hormaphis* there are but 2. The fact that in *Sc. americana* there are 4 is therefore interesting, and of some value in this connection.

† The bibliography of this species very well illustrates the confusion that too often surrounds the proper determination, not only of insects of this family, but of all orders. It is due to three causes, not easily removed: 1st, the miserably insufficient nature of the earlier descriptions and definitions; 2d, the isolation of the earlier English entomologists from those of the continent, and the dual nomenclature that has arisen from independent work; 3d, the want of a common ground for generic characterization. Walsh referred the species to *Thelaxes*, which has, however, 5-jointed antennæ. *Vacuna*, Heyden, is synonymous with *Thelaxes*, though Walker would restrict the former to *alni*, Schrank, and the latter to *dryophila*, Schrank ("The Zoölogist," London, February, 1870, p. 2001), without pointing out generic differences, as the want of a fork in the cubital vein in Koch's figure is clearly an error of the artist. Mr. Monell founded the genus *Colopha* for *ulmicola* on the fact that the antennæ of the winged female are 6-jointed. Such a difference can hardly have generic value when we find *ulmicola* occasionally with but five antennal joints, and (if Huxley is correct in his determination) *dryophila* sometimes with six (Trans. Linn. Soc. xxii, pp. 203, 234). But, taken in connection with the fact that *ulmicola* is a flocculent species, the true female producing but one large egg, while *dryophila* is without flocculence, the female (according to Huxley) laying many eggs, *Colopha*, considering *ulmicola* as the type, may be accepted as a good genus.

‡ Fifth Report on the Noxious Insects of N. Y. § 347.

BIOLOGICAL.

The impregnated egg of this species is also to be found during the winter in exactly the same sheltered situations, in and under the bark of the White Elm, as that of *Schizoneura americana.* It is almost always sheltered by the dry and somewhat wrinkled skin of the true female, being seldom extruded, but occupying the whole of the body (Fig. 2, *b*). Occasionally the mother skin is more or less freed. The young stem-mothers hatch from the winter egg about the same time, and are minute dark olive-brown specks, just visible to the unaided eye, and quite active during pleasant weather, crawling nimbly about over the tree, till they reach a tender leaf that is just unfolding, when they also settle upon the under surface, and begin to feed on and fret the same. They doubtless insert their beaks in various portions of the buds or expanding leaves ere settling, since, before the gall begins to form, the little architect has generally obtained twice the size it had when first hatched. By the middle of April, in the latitude of Saint Louis, the galls generally begin to show, at first as slight elongate ridges on the upper surface, with corresponding closed depressions on the lower surface. Upon drawing apart the lips of the wrinkle beneath, at this stage of the growth of the gall, the stem-mother, who still retains her glossy olive-brown appearance, is seen constantly running back and forth in the cavity, and inflicting rapid punctures with her beak, the inner surface of her dwelling being smooth and glossy, with a slightly blistered appearance, in contrast with the normal, more rough and pubescent texture of the under surface of the leaf. The development of the gall is very rapid, and, with favorable weather, the top part begins to bulge so as to give the contracted appearance of the base, and the tooth-like prominences begin to appear by the third day. The inmate likewise grows apace. After the first molt, she soon becomes more pyrifrom and paler, with transverse rows of powdery secretion. She is less active, but still marches about, incessantly fretting the surface with her short, stout beak. A second molt takes place, and by the time the gall has fully developed, or about two weeks from the time it commenced forming, the process of reproduction commences, and continues for two or three weeks, until the stem-mother is exhausted, and the gall is absolutely crowded with this second generation in all stages of growth. The lice are more or less covered and interspersed with the mealy or cottony excretion, and with the various-sized globules of gummy liquid, which is sometimes so abundant that it will fall upon the ground like a shower of milky fluid, whenever badly infested trees are shaken. The insects comprising this second generation, or the immediate issue from the stem-mother, thus born within the habitation which she had built up, are similar to their parent, but somewhat larger at the moment of birth than she was, and of a paler olive-green color. They are quite active within the gall, exploring its concavities, and obtaining their nourishment through its walls. After the second molt, they attain the pupa state, (Fig. 2, *d*), and in due time become winged. There is but one generation produced within the gall—a generation, however, that becomes very numerous under favorable conditions. They all become winged, and in this respect the species differs essentially from *Schizoneura americana*, as we have already seen. The winged lice carry their wings flat on the back while in the gall, but deflexed afterward. They issue from the slit on the lower surface of the leaf, which opens for their exit about the time they become fledged. They are all females, and give birth, in the course of a day or so, to upward of a dozen young, which, when first born, are enclosed in the usual delicate egg-like covering already alluded to, and which look like their immediate parent at a corresponding state of existence, except that their antennæ have five subequal joints, and the promuscis reaches to the hind coxæ (Fig. 2, *c*).

So far I have been able to trace the history of the species with absolute certainty, watching it for several years, and proving, by extracting the stem-mother soon after she had commenced reproducing, that the second generation, *i. e.*, her immediate progeny, all become winged, the species agreeing in this respect with the gall-making species of *Phylloxera* that affect the Hickory. There is, however, a link yet wanting in our knowledge of the history of this species, between this third generation and the mouthless sexual individuals, the females of which so often perish while yet covering their solitary winter eggs. I have not been able to prove absolutely that there are two broods of the gall-making female, and my observations all tend to the conclusion that no galls are formed except by the stem-mother that hatches from the impregnated egg. I have never succeeded in obtaining galls either by enclosing the winged females in muslin bags tied on the living trees, or by similarly enclosing her immediate progeny, though I have succeeded in obtaining, without any difficulty, an abundance of galls by so enclosing the stem-mother. Moreover, all such succulent galls as this one are produced on the tender young leaves only, and I have failed to find them on any but those which develop early in the season. It is true that we may frequently find the galls quite fresh, and containing larvæ, pupæ, and winged insects as late as the first week in July, and these late galls, as well as the insects within them, are generally more yellowish than those found earlier in the year; but a careful study of the structure of the inmates shows them to be identical with those found in the earlier galls, and these late galls are, from present knowledge, to be attributed to the work of late hatching and late developing stem-mothers rather than to the work of the third generation. I am inclined to think that this third generation will be found to have a different habit, possibly feeding upon some other part of the tree, without forming galls, and producing in time the true sexual individuals, something as in the case of the seventh generation of *S. americana.* At all events, the true female (Fig. 2, *b*), with the solitary egg, is to be found about the trunk of the tree, as already described.

DESCRIPTIVE.

COLOPHA ULMICOLA.

Byrsocrypta ulmicola, Fitch, 4th N. Y. Rep. 1858, p. 63 (§ 347).—*Thelaxes ulmicola*, Walsh, Proc. Ent. Soc. Phil. vol. i, p. 305, 1862; American Entomologist, vol. i, p. 108, 1869.—*Colopha ulmicola*, Monell, Canadian Entomologist, vol. ix, p. 102, 1877.

Impregnated or winter egg (Fig. 2, *b*).—Length 0.38^{mm}, perfectly ovoid, shining olivaceous, inclining to brown, with no particular sculpture.

First generation, or stem-mother.—0.4^{mm} long when hatched. Antennæ 4-jointed, joints subequal in length and thickness, but with the bases of hairs rather strong. Promuscis very short, reaching only to middle coxæ or a little beyond. Upper tarsal hairs globate at tip and as long as tarsus. Smooth, dark olive-brown in color with black members. After first molt, the beak is still relatively shorter, as also the tarsal hairs; the color is paler, but the members are still black. She measures 1^{mm} in length when beginning to bear, and the third joint of antennæ is then somewhat clavate (Fig. 2, *g*), and as long as joints 1 and 2 together; the 4th narrower, as long as 3d, and rather truncate at tip, with two rather conspicuous piliferous prominences. Color translucent yellowish-green, often inclining to purple.

Second generation.—0.4^{mm} long when born (Fig. 2, *c*); nearly five times as long as wide; the antennæ (Fig. 2, *h*) short and 5-jointed, the joints subequal in length, the 3d shortest and narrowest, the 5th swollen and sub-fusiform, with rather strong bulbs at the base of the hairs. Promuscis reaching to hind coxæ. Distinct globate tips to the four tarsal hairs. Color pale olive-green, with black members and a dusky stripe on the notum. *Pupa* (Fig. 2, *d*) with antennæ smooth, 6-jointed, joints subequal in thickness, joint 4 only as long as 2; 5 and 6 each twice as long; 3 four times as long. Color dingy orange, with a paler band around the thorax, embracing the wing-pads, and reminding one, on this account, of the pupa of *Phylloxera*. *Winged female* (Fig. 2, *e*): Average expanse 3.7^{mm}; the form of body more as in *Phylloxera*, the abdomen tapering and narrower than the thorax, bearing from ten to twenty pseudova. Blackish, with an olive-green tint, the abdomen and under surface yellowish-green in the fresher individuals. Antennæ (Fig. 2, *f*) reaching only to insertion of front wings, 6-jointed; joints 4, 5, and 6 subequal, and together equal to 3 in length. [Three specimens examined have joints 4 and 5 very imperfectly separated, causing the antennæ to appear as 5-jointed.] Wings as described by Walsh, the stigma being well rounded and pale. [In three specimens examined, the third discoidal of the front wing is simple and precisely as in *Pemphigus;* in one specimen, the first discoidal is wanting on both front wings, and in another the fork of third discoidal is wanting on the left one.] Basal joint of tarsus rather short; tarsal claws only moderately strong.

Third generation.—The young from the winged female, after being freed from the pellicle in which they were born, have stout five-jointed antennæ, the joints subequal;

stout but short promuscis reaching to hind coxæ; rather large compound eyes. Proportions and shape of young *Phylloxera*.

True female: Legs short and the basal joint of tarsus rudimentary; antennæ short, four-jointed, smooth, joints subequal, the third somewhat longest. Mouth rudimentary. Described from skins surrounding impregnated egg. Males unknown.

PEMPHIGUS POPULI-MONILIS, n. sp.

[Gall (*populi-monilis*) on the Narrow-leaved Cottonwood (*Populus balsamifera*). A series of more or less confluent moniliform swellings (Fig. 3, *g*) on the upper side of the leaf, each containing a single female, destined to become winged, when it escapes from beneath, the winged insect occupying the entire cavity of the gall.]

BIOLOGICAL.

A very interesting gall, which may be called the Bead-like Cottonwood Gall, occurs on the Narrow-leaved Cottonwood (*Populus balsamifera*, L., var. *angustifolia*, Torrey), during the summer, in Colorado, and probably wherever this narrow-leaved variety grows. Though I have often found the tree in question so covered with these galls, especially at Greeley, that not a leaf was exempt, yet *Populus monilifera*, even when growing along the bank of the same irrigating ditch and mingling its branches with *angustifolia*, would be entirely free from them. The galls when not very numerous appear most commonly on the terminal leaves of a twig. They form a confluent series of pale yellow ovoid swellings, each side of the midrib (Fig. 3, *g*) recalling, in the distance, a lot of unripe cherries, or, again, the galls produced on a true willow by the Sawfly larva—*Nematus salicis-pomum*, Walsh. There will sometimes be three rows of these swellings, and they are not infrequently tinted with red. There are, however, more often but two rows, occupying nearly the whole space each side of the midrib. The galls are formed by the folding-under of the sides of the leaf and the bulging of the same around the insect, which is always found solitary. The newly hatched louse is found in the younger galls, and on the same branch, according to the age of the swelling, the insect occurs in all stages of growth, the full-fledged female, with her wings folded flat, filling nearly the whole cavity. After leaving the gall, her wings are carried in the normal tectiform manner, and, when rendered transparent by liquid, her abdomen is seen to be swollen with fifty or more egg-like bodies, the dark eyes of which show conspicuously. These bodies are the pseudova, and the female commences at once to deposit them upon issuing from her dwelling. The young, which free themselves in the course of a few minutes from the confining pellicle, are of a pale yellowish-green, with black eyes. In structure, these young differ only from the preceding generation, at a similar age, by the somewhat narrowed body and by the promuscis reaching beyond the anus. Just where these young are deposited by the winged mother, I have not had opportunity to ascertain. They probably found new galls, the process continuing until the late summer or autumn generation of winged females give birth to the sexual individuals, and these consign to the permanent parts of the plant the winter egg. The probability is, also, that the stem-mother that hatches in the spring has a different habit, producing not improbably a quite different gall.

DESCRIPTIVE.

PEMPHIGUS POPULI-MONILIS, n. sp.—*Winged female* (Fig. 3, *a*): Average expanse 6.5^{mm}. Black, the abdomen a little lighter, especially at the tip. Finely powdered with white; broad across the shoulders, the scutellar lobes of the mesonotum being rather more flattened than the præscutum; the head rather small and narrow. Antennæ (Fig. 3, *b*) and legs rather short, the former reaching only to base of front wings; 6-jointed; joints 1, 2, 4, and 5 subequal in length; 3 twice as long; 6 not quite as long as 3. Joints 1 and 2 very stout; 3, 4, and 5 somewhat clavate; nearly smooth above, but with about twelve deep constrictions beneath. Legs normal, with basal joint of tarsus (Fig. 3, *f*) tolerably well separated, and unguis stout. Wings subhyaline; front wings with stigma strongly angulate, dusky, the lower portion almost black. Veins dusky, the costal and subcostal stout and darkest. Stigmal vein undulate, starting from a little beyond the middle of stigma. First and second discoidals almost connected at base [in three specimens entirely so], and the distance between them at tips about one-third greater than between 2d and 3d discoidals, and that between these two subequal with that between the last mentioned and stigmal; the 3d discoidal obsolete toward base. Fold of hind border but moderately thick. Hind wings ample, the hook-angle but moderate, the subcostal slightly undulate and considerably elbowed at basal third, whence spring the discoidals, the first bending slightly toward posterior margin, the second toward costal margin, the spaces between the tips of the costal and the discoidals subequal, and together rather more than half of posterior border. [An examination of fourteen specimens only showed one with the third discoidal forked on both wings, and another with the same vein forked on the left wing, and the second discoidal also forked near tip.] When newly hatched, or in the first age, the basal joint of tarsus is scarcely perceptible, and the tarsal hairs are simple; the antennæ (Fig. 3, *c*) are 4-jointed, the basal joint half as long as the 2d; 3d and 4th somewhat longer and subequal; the 4th suddenly narrowed at tip; the promuscis reaches beyond hind coxæ. After first molt, the antennæ (Fig. 3, *d*) are 5-jointed, the 4th very short and almost globular: the promuscis now reaches to the middle coxæ only. In the pupa state, the antennæ are 6-jointed.

Young from winged female similar to the same stage of its parent, except in the promuscis reaching beyond anus (Fig. 3, *e*). Length 0.15^{mm}.

Throughout Central Colorado, July (Riley); Southern Kansas (Monell).

HORMAPHIS SPINOSUS (Shimer).

[Gall (*hamamelidis-spinosa*) on stem of *Hamamelis virginica* in autumn, being a deformation of the fruit-bud.]

Another gall (Fig. 4, *a*) I have found in autumn on the stems of the Witch-hazel. It is made by a new species of flocculent plant-louse, congeneric with one that is known to make conical galls on the leaves of the same plant. The gall is a deformation of the flower-bud, the puncture of the architect causing premature development, by which the calyx, bractlets, and petals are all changed into elongate bracts, more or less pointed terminally, and more or less completely soldered together at bases, so as to form a thin wall. In August, the gall is green and crowded inside with lice in all stages of growth, from the newly-born to the pupa and winged female, intermixed with flocculent matter and watery globules, the insects themselves being rather evenly covered with a fine white powder. Later in the season, the tips of the bracts become blunter, and the gall becomes browner, and recalls externally the fruit-pod which would have developed the ensuing year. It is now perforated at some point, generally near either the top or base, and through the aperture the insects have either made their exit or may be noticed doing so. The young from the winged female are quite characteristic, being strongly granulated, and, as they were found as late as the end of October, they probably hibernate on the permanent parts of the tree. The sexed individuals and the stem-mother are yet unknown. The species was first described in 1867 by Dr. H. Shimer of Mt. Carroll, Ill., who erected a new genus for it and another well-known species on the same plant, not aware that the genus had been previously characterized by Baron Osten Sacken, in 1861.

HORMAPHIS SPINOSUS.

Hamamelistes spinosus, Shimer, Trans. Am. Ent. Soc. i, p. 284, 1867.

Winged female (Fig. 4, *b*): Expanse 5^{mm}. Color dark brown, uniformly pulverulent, the abdomen slightly paler and filled with egg-like bodies. Head with a frontal tubercle, and with the promuscis not reaching to beyond front coxæ. Antennæ (Fig. 4, *d*) reaching to base of front wing; 5-jointed, joints 1 and 2 bulbous and smooth, the others with about 50 close and regular and well-defined annulations; joint 3 six times as long as 1 and 2 together; joints 4 and 5 each half as long as 3, the terminal joint not being narrowed at tip. Thorax with the pronotum well defined, mesonotum having a thickened anterior border, with two small angles in front; the scutellar lobes and præscutum small. Tibiæ with a lobe each side at juncture with tarsus, the basal joint of tarsus not distinctly separated, and the tip furnished with two superior, knobbed hairs. Wings hyaline, the stigma and costal area fuliginous, the stigma pointed, but only slightly broadened; first discoidal almost transverse, second do. starting from it at upper third; cubital running straight toward base of first discoidal, but usually obsolete at basal half; terminal space between second discoidal and cubital wider than between it and the stigmal. Hind wings with the hooks strong, the costal vein straight, and a single discoidal, the first being obsolete. [Out of 20 specimens examined, I find the basal portion of the first discoidal of front wing connecting with the second at base, either on one wing (2 specimens) or on both wings (4 specimens), and in two cases this first discoidal is complete on one wing and incomplete on the other.] *Larva* quite broad and squarish anteriorly, with a frontal tubercle (Fig. 4, *h*), and with the antennæ 4-jointed; promuscis reaching to hind coxæ; color brown, with mesonotal lobes more yellowish. Transverse dorsal rows of four piliferous spots are faintly observable. Antennæ after first molt 5-jointed, and promuscis hardly reaching to middle coxæ. *Pupa* with similar antennæ and somewhat shorter promuscis.

Young from winged female (Fig. 4, *e*): Resembling the larva of preceding generation, but distinguished by the absence of frontal tubercle, and by having the surface, except mesio-ventrally, evenly and conspicuously granulated. The terminal joint of antennæ also shows some constrictions (Fig. 4, *g*).

PEMPHIGUS POPULI-TRANSVERSUS, n. sp.

[Gall (*populi-transversa*, Fig. 5, *a–b*) formed upon the petiole near the base of the leaf of *Populus monilifera* and *P. balsamifera*. An elongate-oval swelling, causing the curving and broadening of the petiole, and opening on the opposite side by a transverse slit, with a whitish, slightly thickened, and elevated margin, recalling human lips. By the latter part of June, the stem-mother is surrounded with young of various sizes, all covered with the usual white secretion, and mixed with the liquid globules. Winged females produced in autumn, sometimes not until the leaves have fallen.]

Winged female (Fig. 5, *c*): Expanse 7^{mm}. Pruinescent, with the abdomen more yellowish, inclining to green. Antennæ (Fig. 5, *d*) reaching a little beyond the base of front wings; smooth; joints 3, 4, and 5 cylindrical, and of equal thickness; 3 as long as the other two together; 6 more slender at base, and with the apical unguis nearly as long as 3. Thorax with mesonotal swellings small. Terminal distance between 1st and 2d discoidal veins of front wings nearly equal to that between this last and the stigmal vein; discoidals almost connected; cubital obsolete at base; subcostal heavy; stigma scarcely wider than subcostal space, acuminate at tip, and with the vein starting a little in front of its middle. Hind wings with the discoidals connected at base, where the subcostal is slightly produced. Legs normal. Abdomen showing about 30 pseudova, and with 4 dorsal rows of faint piliferous dots. *Pupa* with joints 1, 2, 4, and 5 of antennæ subequal in length. The wingless forms are pale creamy-yellow, with faintly dusky members.

Missouri, Southern Texas, and Colorado (Riley). May possibly be *popularia*, Fitch, the description of which does not admit of identification.

This gall occurs all over the West and Southwest, and while it normally occurs in the position and of the form described, it may occur on any part of the petiole, and the opening may be more or less oblique, or form a mere circular hole. Sometimes two and even three coalesce. The lip-like bulging is, however, constant. In the galls, after they had fallen to the ground, I have found in Southern Texas a number of large, yellow, apterous females of an undescribed *Phylloxera*, surrounded with their numerous eggs and with young of all sizes—a fact that would be extremely confounding were *Phylloxera* and *Pemphigus* not so easily distinguished.

PEMPHIGUS POPULI-RAMULORUM, n. sp.

[Forming an irregular globular gall (*populi-ramulorum*), often somewhat flattened, on the twigs of *Populus balsamifera* in Colorado. The gall averages 15^{mm} in diameter, and opens in a suture sometimes transverse, sometimes oblique, but more often longitudinal with the axis of the twig: exceptionally the opening is round and bulging. Green when fresh, it becomes gray and woody with age.]

PEMPHIGUS POPULI-RAMULORUM.—*Winged female:* Alar expanse 6.8^{mm}. Black and pruinescent, scarcely distinguishable from *populi-transversus*, except by the more annulate antennæ, the 4th, 5th, and 6th joints of which are much narrowed at base. The 6th joint (including subjoint) scarcely as long as 3d. The pupa is yellowish, with black eyes, and pulverulent.

Colorado (Riley).

Several of the species of *Pemphigus* forming galls upon *Populus* so closely resemble each other that they could not well be separated as species were it not for the differences in the galls they produce. Future careful investigation may show that the same species will produce different abnormities, and be slightly modified in appearance according as it affects different parts of the plant; but until we have such proof, the presumption is that the different galls are produced by distinct species, however similar the architects are in general appearance.

PEMPHIGUS ACERIFOLII, n. sp.

[Living in abundant and long cottony excretion, on the under side of the leaves of *Acer dasycarpum*, causing them to curl, and exuding an abundance of thick and very glutinous "honey-dew."]

PEMPHIGUS ACERIFOLII, n. sp.—*Winged female:* Alar expanse 10^{mm}. Head and thorax bluish-black. Abdomen black, covered with long cottony threads. Antennæ reaching the wing-insertions; annulations not conspicuous; joints 3, 4, 5, and 6 somewhat contracted at base and apex; apical unguis not perceptible; joints 5 and 6 subequal; 4 distinctly clavate; 3 as long as the two preceding together. Wings subhyaline, of a whitish tinge; subcostal vein and the inner margin of the stigma black; oblique veins whitish; stigma short and broad, not angled at the base of the stigmal vein, which starts from a little behind its middle, and is comparatively straight, thereby making the apical cell rather narrow. Terminal distances between the veins subequal, that between 2d discoidal and cubital somewhat greatest; basal one-third of the cubitus hyaline, but not abortive, as it can usually be traced to its base, which is very close to that of the second discoidal; bases of the two discoidals either approximate or quite contiguous; discoidals of the hind wings proceeding connectedly from the subcostal vein. Larva with 5-jointed antennæ, and the promuscis extending beyond tip of abdomen.

June—July; Saint Louis, Mo. (Riley); Clinton, N. J. (Prof. W. D. Robbins).

PEMPHIGUS FRAXINIFOLII, n. sp.

[Infesting the terminal leaves of *Fraxinus americanus* and *F. sambucifolia* from spring till late summer, and producing a twisted curl thereof; the young lice varying in color from deep glaucous to livid, very flocculent and exuding the liquid globules quite copiously. Winged females appearing early in June.]

PEMPHIGUS FRAXINIFOLII, n. sp.—*Winged female:* Alar expanse 5.7mm. Head and thorax dusky: abdomen dark green: antennæ reaching by the length of the apical joint beyond costal base of front wings; inconspicuously annulated and with joints 3—6 but moderately narrowed at base; joint 3 as long as 4 and 5 together; 6 (including unguis) nearly ¾ths as long again as 5, with the unguis distinct and of normal length. Scutellar lobes of mesonotum broad and well marked. Legs normal. Wings hyaline; stigma linear, or not wider than subcostal space, yellowish and poorly defined anteriorly; veins very slender and sub-hyaline, the stigmal most distinct, starting a little in front of middle of stigma, and but faintly curved; cubital almost invisible, but not obsolete at base, where it nearly joins the 2d discoidal. Terminal spaces between 1st and 2d discoidals, and between this last and cubital, subequal; that between cubital and stigmal only half as great. Discoidals of hind wings proceeding connectedly from subcostal. Promuscis reaching beyond front coxæ; abdomen with 7 rather large roundish spots each side, each sending out 2 hairs. [In some specimens the cubital starts independently from the subcostal; in others it joins the 2d discoidal a short distance from base.] *Pupa* with the 3d joint of antennæ relatively somewhat shorter.

Larva of probable second generation: Antennæ smooth, 4-jointed; joint 3 somewhat longer than 4, and as long as 1 and 2 together; apical nipple ⅙th as long as the 4th joint. Promuscis slender, reaching beyond hind coxæ. Legs rather long and stout. Tibiæ, tarsi, and anal joints of abdomen with a few conspicuous hairs. Full-grown, apterous female, probably of this same generation, differs in having 6-jointed antennæ, proportioned much as in the winged female.

Larva from winged female; probable fourth generation: Antennæ 5-jointed; joints 1, 2, 3, 4, subequal in length; 3, 4, stouter; 5 very short and rounded at tip. Promuscis very long, reaching beyond tip of abdomen.

Tolerably common at Saint Louis, Mo. (Riley, Monell); Sauk City, Wis. (Thomas).

The life-history of this insect has not been fully studied, as the sexed individuals and the winter egg have not been observed. It will doubtless be found to agree in most particulars with that of *Schizoneura americana.*

The species stands somewhat in the same relation to the European *Pemphigus fraxini* (Fabr.)* as does *Schizoneura americana* to *S. ulmi.* The European species is larger, with the wing-veins differently placed, and inhabits the twigs and stems, instead of the leaves; but otherwise there is a good deal of resemblance between the two.

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* *bumeliæ*, Schrank.

PART II.

NOTES ON APHIDINÆ, WITH DESCRIPTIONS OF NEW SPECIES.—J. MONELL.

Siphonophora, Koch.

Rostrum moderately long.
Antennæ seated on more or less conspicuous tubercles; longer or at least as long as the body; third joint long; first joint subcylindric; seventh joint setaceous, very much longer than the preceding; frontal tubercles approximate.
Nectaries long, subcylindric, slender.
Style (cauda) long, often compressed, falchion-shaped.
Legs slender, very long.
Wings deflexed.
Front wings with four oblique veins; the cubitus twice forked.
Hind wings with two oblique veins.

So far as is known, the oviparous females in this genus are always apterous and the males winged. The males usually have smaller abdomens, larger wings, and longer antennæ than the viviparous winged females. As in most other *Aphididæ*, the antennæ are, strictly speaking, six jointed, the so-called seventh joint being merely a slender prolongation of the true sixth joint.

Whatever opinion one may hold as to the characters that should be considered of generic importance, the first requirement of a system of classification must be practicability. In a family like the *Aphididæ*, where the species are numerous and exceedingly difficult to study, I should be inclined to accept any generic arrangement, however arbitrary, if it were but practicable. What Walsh said of species is equally applicable to genera. The only valid practical criterion of generic distinctness is the general non-existence of intermediate grades in the distinctive characters. Even granting that the existence or non-existence of the frontal tubercles would be of generic importance, which I very much doubt, the genera depending on this character must be united, as they are connected by so many intermediate gradations that it is impossible to fix a limit between them. So little is known in regard to these insects that for the present I prefer retaining the genera as generally adopted, as it would be useless, and only add to the confusion, to propose a generic arrangement which future observations may overturn. Though the connecting links between some of the genera have not yet been discovered, yet, as these genera are based on comparative, and not absolute, differences, it is more than probable that future discoveries will force us to unite most, if not all, of the genera of the *Aphidinæ*, and to readopt the generic arrangement given by Kaltenbach.

SIPHONOPHORA ACHYRANTES, n. sp.—*Apterous females:* Pale green, with a dark irregular stripe on each side of the abomen; in fully developed specimens occasionally with an additional short stripe near the basal part of the abdomen, extending over several segments. *Winged females:* Head, prothorax, and sometimes the upper segments of the abdomen, brownish-black; the upper part of the thorax with a narrow, but conspicuous, transverse, yellow band; general color of the abdomen pale green, with irregular, broken, transverse, dark brown lines, three of these often becoming confluent, and producing a dark patch in the centre of the abdomen, just above the honey-tubes. Nectaries long, cylindrical, slightly dusky at their apices. Style long, slender, slightly curved upwards, more or less dusky. Length of the antennæ a little variable, as long as the body, or slightly longer. Frontal tubercles approximate at base, and somewhat porrect. Wings hyaline; stigma rather narrow and linear; stigmal vein very short, and curved much as in the genus *Callipterus*. The forklets of the cubitus are especially variable, their length being in one case four times and in another one-half that portion of the cubitus between the base of the lower branch and the base of the forklets. In the normal specimens, these distances are subequal. Length 2.28^{mm}; to tip of wings 3.81^{mm}.

On the under side of leaves of *Achyrantes* (*Amarantaceæ*). This is the first species that has been noticed as infesting plants belonging to this order. A species closely allied to this occurs on Polygonum and another on Lettuce, but my notes on their colors are not sufficient to enable me to describe them satisfactorily.

SIPHONOPHORA CALENDULELLA, n. sp.—*Viviparous apterous females:* General color very pale whitish-green, varying to yellowish. Antennæ whitish, as long as the body, mounted on porrect tubercles. Legs yellowish, except the tarsi. The nectaries and short style concolorous. Length 1.27—1.77^{mm}.

On the under side of leaves of *Calendula micrantha*. July, Saint Louis, Mo. Described from four viviparous females and two pupæ.

This species can be easily distinguished from the allied *S. achyrantes* by its very much paler colors, and by having the frontal tubercles more porrect in the apterous form.

What use the porrect tubercles can be to an Aphid I am unable to surmise, but I have observed on three occasions single individuals belonging respectively to *S. achyrantes*, *S. calendulella*, and *Phorodon mahaleb*, which held a small fragment of some black extraneous substance tightly clasped between the tubercles. Whether this was accidental or not, I will not presume to say.

SIPHONOPHORA GRANARIA (Kirby).
Aphis granaria, Kirby, Linn. Trans. iv, 238.
  hordei, Kyber.
  cerealis, Kalt.
  avenæ, Fitch, et auct. amer.
Siphonophora cerealis, Koch, Kalt., Pass. et auct. plur.
  avenæ, Thos.
  granaria, W'lk., Buckt.

It is impossible to determine whether this is the *Aphis avenæ* of Fabr. and Gmelin, as these authors give no description of the species. *S. cerealis* seems to be the name which has been generally adopted in Europe, while *S. avenæ* is the one universally adopted in America.

SIPHONOPHORA TULIPÆ, n. sp.—*Apterous females:* Pale green, with a dusky-green stripe down the middle and darker green on the margins of the abdomen. Winged individuals with the antennæ as long as, or a very little longer than, the body, mounted on conspicuous tubercles which are not porrect; apical joint long and threadlike, longer than the fifth, and about five times as long as the sixth. Honey-tubes very long, dusky at apex. Tail, when extended, about twice the length of the tarsi, pale green. Length 3.04^{mm}; to tip of wings 4.82^{mm}.

On petals and stigma of Tulips, April; Saint Louis, Mo.

I believe that no other *Aphididæ* have been found on Liliaceous plants, excepting an undescribed *Aphis* collected by Prof. Riley on Yucca flowers at Greeley, Colo.

SIPHONOPHORA TILIÆ, n. sp.—*Apterous individuals:* Head and thorax yellowish or yellowish-green; abdomen green; nectaries with the basal one-third green, apical portion black. *Winged individuals:* Head and thorax reddish-yellow; abdomen and style green. Antennæ about twice as long as the body, mounted on conspicuous tubercles. Wings hyaline. Stigma yellowish. Nectaries subcylindric, four or five times as long as the tarsi. Length 2.54–3.04^{mm}; to tip of wings 5.08^{mm}.

On the under side of Linden leaves, causing them to curl.

SIPHONOPHORA LIRIODENDRI, n. sp.—*Winged female:* Head, thorax, and two basal joints of the antennæ red. Abdomen green. Nectaries and apical portion of the antennæ black. Antennæ much longer than the body; the tubercle near the apex of the fifth joint very distinct. Nectaries usually slightly incrassated at the base, about four times as long as the tarsi. Style slender, when fully extended one-third as long as the nectaries, more or less greenish. Wings hyaline. Stigma long, much tapered at base and apex; apex acute, nearly opposite the middle of the stigmal vein. Distance between the apex of the stigmal vein and the apex of the upper forklet equal to half that between the forklets. Length 2.54^{mm}; to tip of wings 4.57^{mm}.

On *Liriodendron tulipifera*, June, July; Saint Louis, Mo.

The leaves on which this species lives do not curl up as in *S. tiliæ*, but soon turn brown and drop off.

The following form also occurs on *Liriodendron*, sometimes in company with the above, but more frequently by itself. I can find no structural differences between the two; but as it seems to present the same differences in coloration in all its stages, it is possible that it may deserve to rank as a distinct species.

Var. RUFA.—General color pale reddish. Abdomen with the ground-color green, the margins red, and a red longitudinal stripe in the middle. Stigma whitish or slightly dusky. Tibiæ, tarsi, antennæ, and nectaries black. Style reddish.

June, July. Saint Louis, Mo.

Walker mentions the occurrence of a red variety of *S. rosæ* (Linn.).

SIPHONOPHORA CRATÆGI, n. sp.—*Apterous individuals:* General color pale yellowish-green, with a darker green mark on each side of the base of the abdomen and scarcely perceptible, darker green, irregular marks near the base of the nectaries. Antennæ about three times as long as the body, black, with the basal third pale greenish; frontal tubercles fully as long as the second antennal joint; seventh joint tapering to an exceedingly slender point, in the adult apterous individuals as long as the fourth, fifth, and sixth joints taken together. Nectaries long, subcylindric, extending beyond the tip of the abdomen, pale, almost translucent. Style half as long as the nectaries, pale yellowish. Legs entirely greenish. Length 2.28^{mm}.

On the under side of leaves of *Cratægus coccinea.* July, Saint Louis, Mo. Described from four specimens.

The antennæ are longer than in any *Siphonophora* known to me. This, together with the exceedingly long and slender seventh joint, will easily distinguish it from all described species.

SIPHONOPHORA SONCHELLA, n. sp.—General color very dark dull greenish-brown. Head and thorax inclined to fuscous. General color of legs green; apical half of femora black; tibiæ dusky at base and apex; tarsi black. Tail yellowish-green, very long. Nectaries entirely black, reaching to the tip, subcylindric. Dorsum smooth. Antennæ much longer than the body; black; third joint very tubercular; fourth joint distinctly tubercular; remaining joints not so; third joint about as long as the fifth, sixth, and seventh joints taken together; seventh joint as long as the fourth and fifth taken together. Length 2.28—2.78^{mm}; to tip of wings 3.81^{mm}.

On *Sonchus oleracea.* July, Saint Louis, Mo.

This species is remarkable for the habit of at once dropping to the ground when disturbed. Several other undescribed species which occur on this same plant can be distinguished by having the third joint of the antennæ very much shorter.

SIPHONOPHORA CALENDULÆ, n. sp.—*Apterous individuals:* General color brownish-black; dorsum smooth and shining, a little reddish towards the nectaries. Legs yellow, except the knees, tarsi, and apex of the tibiæ, which are jet-black. Nectaries black, subcylindric, very long. Style yellow, slender, acute, two-thirds as long as the nectaries or a little less. *Winged individuals:* General color black; head and thorax slightly fuscous. Antennæ black, half as long again as the body; third joint as long as the sixth and fifth taken together, very slightly tubercular; the following joints not so. Nectaries slightly fuscous towards the apex. Wings hyaline. Length 2.28—3.04^{mm}; to tip of wings 3.81—4.56^{mm}.

On stems of *Calendula micrantha.* June—July, Saint Louis, Mo.

I have specimens of what is perhaps this same species, taken at Cordova, Ill., on *Bidens chrysanthemoides*, but having made no notes on the colors, cannot decide positively.

The allied North American species may be arranged as follows:

A. Body entirely red .... *rudbeckiæ.*
AA. Body dark brown.
  B. Dorsum smooth.
    C. Third and fourth joints of the antennæ very tubercular.......... *sonchella.*
    CC. Fourth joint not tubercular. Third joint short .... *calendulæ.*
  BB. Dorsum of the apterous individuals more or less covered with tubercles .... *ambrosiæ.*

SIPHONOPHORA RUDBECKIÆ, Fitch.

This species has been taken at Saint Louis on *Vernonia novæboracensis, V. Lindheimeriana, Solidago rigida, S. serotina, Bidens chrysanthemoides, Ambrosia trifida, Cirsium arvense, Silphium perfoliatum, S. integrifolia*, and *Cacalia suaveolens.* A yellowish-red variety has been found on *Cirsium.* It is rather remarkable that Rafinesque should have overlooked this species, which I believe is the commonest of all American

Aphidians, and is very generally distributed over the eastern portion of the United States.

SIPHONOPHORA FRAGARIÆ?, Koch, var. IMMACULATA, Riley.*

According to Professor Riley, this form is similar to *S. fragariæ* Koch, differing chiefly in lacking the row of minute black spots on each side of the back, and in the head of the apterous females not being black, but yellowish. November, Kansas City, Mo.

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* Professor Thomas omits this species in his "List of the Aphidini which have been heretofore named," &c. As the great merit of a list is completeness, the following enumeration of omitted species may serve as a supplement to that author's paper:

Siphonophora fragariæ var. *immaculata* Riley, Rural World, December, 1875.
Aphis quercifolii Walsh, Ent. Soc. Phila. i, December, 1862, Genera of N. Am. Aphidæ.
Aphis carduella Walsh, l. c.
Aphis tritici Fitch, 1861, (loc. ignot.). Referred to in Ann. de la Soc. Ent. de France, 1867, p. 26, Library Catalogue.
Aphis rubecula Haldm. Proc. Bost. Soc. Nat. Hist. vol. i, p. 168, 1844.
Aphis bicolor Haldm. l. c. p. 168.
Aphis marginipennis Haldm. l. c. p. 168.
Aphis pilosa Haldm. l. c. p. 169.
Aphis discolor Haldm. l. c. p. 169.
Aphis verticolor Raf. Am. Monthly Mag. and Critical Review, i, p. 361, 1817.
Aphis furcipes Raf. l. c. i, 361.
Aphis rhodryas Raf. l. c. iii, 15, 1818.
Aphis diplepha Raf. l. c. iii, 15.
Aphis oreaster Raf. l. c. iii, 17.
Aphis gibbosa Raf. l. c. iii, 17.
Aphis xanthelis Raf. l. c. iii, 17.
Aphis annulipes Raf. l. c. iii, 17.
Aphis ambrosia Raf. (nec Thos.) iii, 17.
Aphis acaroides Raf. l. c. iii, 17.
Callipterus mucidus Fitch, N. Y. Rept. iii, § 20.
Callipterus castaneæ Fitch, l. c. ii, § 199.
Callipterus bella (Walsh), *Aphis bella* Walsh, l. c.
Calaphis betulella Walsh, l. c.

Whether or not the writings of Rafinesque on the *Aphididæ* are deserving of credence and acceptance is a question which I do not propose to discuss; I however think that such of his species as are named in accordance with the binomial rule should be placed in the same list as the early descriptions of Fitch, and, like them, should be held subject to recognition. The recognition of these imperfectly described species is little more than a matter of courtesy, and mere courtesy would never prevail on us to burden the nomenclature of the *Aphididæ* with such sesquipedalians as *Aphis melampyrum-latifolium*, &c.

Rafinesque's statement that *A. diervilla-lutea* and *A. erigeron-philadelphicum* have bent antennæ, on account of which he erects the genus *Loxerates*, would make me doubt whether they belonged to the *Aphididæ*, but his mentioning the nectaries in the description of the latter species places the matter beyond doubt. It is probable that the antennæ are merely bent back over the body, as in many species of *Siphonophora*. *Cladoxus* Raf. does not belong to the *Aphididæ*. Inclusive of Rafinesque's binomial species (and excluding the trinomial ones), the described *Aphididæ* of the United States amount in all to 166 species, 107 of which belong to the *Aphidinæ*.

The strawberries on which these Aphides occurred came from Palmyra, N. Y., and South Bend, La., from which places this species was probably imported. From an examination of a single dry specimen in the cabinet of Professor Riley, I am inclined to think that this will prove to be a distinct species. The second cubital cell is smaller than in *S. fragariæ*, and the distance between the first and second discoidals a little more than twice that between their bases.

Aphis, Linn. (emend.).

Rostrum moderately long.
Antennæ remote at base, not seated on frontal tubercles, or seated on very inconspicuous ones; usually smooth, and generally shorter than the body.
Seventh joint longer than the sixth.
Front flat or convex.
Nectaries subcylindric, rarely very small, very rarely none.
Style more or less prominent, very rarely none.
Wings deflexed.
Front wings with four oblique veins, the cubitus twice forked.
Hind wings with two oblique veins.

APHIS LUTESCENS, n. sp.—*Winged individuals:* General color bright lemon-yellow. Antennæ somewhat pilose, a little shorter than the body. The length of the joints is quite variable: in some specimens, the third joint is subequal to the preceding, while in others it is one-third longer. Seventh joint filiform, very much longer than the third. Nectaries somewhat dusky, gently tapering from base to apex, the apical diameter being about two-thirds that of the base; about three times as long as the tarsi. Style dusky yellow, blunt at apex, when fully extended about half the length of the nectaries. Fore wings hyaline; stigma dusky yellowish, acute at the apex, which is opposite the middle of the stigmal vein. Stigmal vein in one regular curve. Discoidal veins of the hind wings nearly parallel; subcostal comparatively straight. Length 1.65—2.03^{mm}; to tip of wings 3.04—3.54^{mm}.

On *Asclepias syriaca.* July, September. Saint Louis, Mo.; Montrose, Iowa; Dubuque, Iowa; Rock Island, Ill.; Cordova, Ill.

The very bright yellow color will at once distinguish this from other North American species.

APHIS VERNONIÆ, Thos.—*Winged individuals:* Abdomen pale yellow; head and thorax somewhat dusky. Antennæ two-thirds as long as the body, the fourth, fifth, and sixth joints subequal to the third. Nectaries cylindric, very slender, about three times as long as the tarsi.

Aphis beccabungæ, with which Professor Thomas supposes this may be identical, has the nectaries and tail black (Passerini).

APHIS SETARIÆ (Thos.).
Siphonophora setariæ, Thos. Ill. St. Lab. Nat. Hist. ii, 5.
Siphonophora panicola, Thos. l. c.

The peculiar brownish-red color of this species will easily distinguish it from other non-pulverulent species. The bases of the tibiæ are always pale yellowish. Leaves and spikes of *Panicum proliferum.* August—September. Saint Louis, Mo.; Keokuk, Iowa; Rock Island, Ill.

APHIS CALENDULICOLA, n. sp.—*Apterous individuals:* General color uniform pale green, the disk of the abdomen usually a little paler, often with a few faint, irregular, darker green marks near the base of the nectaries. Antennæ about two-thirds as long as the body, pale, slightly dusky towards the apex; apical joint as long as, or slightly longer than, the third. Nectaries entirely black, slightly tapered towards the apex, twice as long as the tarsi. Style short, pale green. Legs entirely pale, except the faintly dusky tarsi and tips of the tibiæ. Length 1.52^{mm}.

On the under side of leaves of *Calendula micrantha.* July; Saint Louis, Mo. This species may be expected to occur on the genus *Tagetes*, to which the "French marigold" belongs. The apical joint of the rostrum is rather short and robust.

APHIS CEPHALANTHI, Thos.

This species does not approach the genus *Callipterus*, as its describer supposes. The semicircular fourth vein, which I suppose suggested this, is a character common to many species of *Aphidinæ*, and is only valuable in distinguishing some genera from *Lachnus*. A closely allied species occurs on *Penthorum sedoides* (*Crassulaceæ*), having much the same color, and showing the same characteristic pruinose spots.

APHIS MEDICAGINIS, Koch.

On *Caragana arborescens*, *Robinia viscosa*, and *Melilotus italica*. This species has not been previously noticed as occurring in America. The shining black dorsum of fully developed individuals will distinguish it from other American species.

Length 1.27—1.77^{mm}; to tip of wings 2.54—3.04^{mm}. July; Saint Louis, Mo.

APHIS SALICICOLA (Thos.).

Siphonophora salicicola, Thos. Bull. Ill. St. Lab. Nat. Hist. ii, p. 8.
Aphis brevifurca, Monl. MSS.

In April last, Miss E. A. Smith sent me a short nectaried Aphidian, which I have provisionally referred to the genus *Cladobius*, with the information that it was the same species which she had sent to Professor Thomas the previous year, and which he had described as *S. salicicola*. Thinking the error a very strange one, I wrote to Professor Thomas in regard to it, and have received through his kindness a number of type-specimens of *salicicola*, an examination of which proves them identical with an *Aphis*, which I have previously found on leaves of Blue-grass. It is very probable that the labels on the vials containing these two species were interchanged, or else that the two species were mixed together; though it is not impossible that the species may occur on both grass and willow. I should have thought that the error was made by myself had I not collected this species on two separate occasions. The stigma is rather linear, a little wider than the forklets are long, and tapered at apex. Forklets of the cubitus smaller than in any known species, their length being about one-fifth the distance between their bases and that of the lower cubital branch.

Length 1.27—2.03^{mm}; alar expanse 5.84^{mm}. April.

The species plainly belongs to *Aphis*, and not to *Siphonophora*.

APHIS CORNIFOLIÆ, Fitch.—*Winged individual:* Head and thorax dusky; abdomen dark fuscous. Fore femora entirely yellow; hind femora yellow only at base; base of the tibiæ yellow in all the legs; tarsi more or less dusky. Antennæ more or less dusky, as long as, or a little longer than, the body. Nectaries dusky, cylindric, scarcely longer than the tarsi. Abdomen truncate. Style dusky, short, but distinct. Wings hyaline. The stigma projecting somewhat above the margin, much as in *A. coreopsidis*, tapered abruptly at apex. Costa and stigma pale yellow; oblique veins dusky. Apterous individuals pulverulent.

Length 1.27mm; to tip of wings 2.28mm.

On the under side of leaves of *Cornus florida* and *C. paniculata*, June—July; Saint Louis, Mo.

APHIS CRATÆGIFOLIÆ, Fitch.

This interesting species belongs to the genus *Aphis*, *sensu strictiori*, and can be distinguished from its allies by its longer stigma, which is gently tapered at apex, and prolonged until opposite the middle of the stigmal vein. This is evidently the same species as that mentioned by Walsh (Phil. Ent. Soc. 1862, p. 301).

On *Cratægus coccinea*, Saint Louis, Mo., June.

APHIS ATRIPLICIS, Linn.

The common *Aphis* on *Chenopodiaceæ* appears to be identical with the European. Its occurrence in America has not been previously noticed. Saint Louis, Mo.; Carbondale, Ill. (Miss N. Middleton).

APHIS HYPERICI, n. sp.—*Winged individuals*: General color light reddish, covered with pulverulent matter; antennæ on short tubercles, a little longer than the body; third joint as long as the fourth, fifth, and sixth taken together; apical joint about twice as long as the preceding. Wings hyaline; stigmal vein much curved; distance between the base of the cubitus and that of the stigmal vein equal to the distance between the apices of the lower forklet and the lower branch of the cubitus. Nectaries very short, only detected with difficulty. Tail reddish, little over half as long as the tarsi, slender and terete.

Length 1.06—1.27mm; to tip of wings 1.77—2.28mm.

Living in colonies on the young twigs and under side of leaves of *Hypericum kalmianum*, to which species it seems to be confined. July, Saint Louis, Mo.

The allied American pulverulent species may be arranged as follows:

- A. Nectaries scarcely perceptible.
  - *b.* General color red .... *hyperici.*
  - *bb.* General color green .... *loniceræ.*
- AA. Nectaries distinct:
  - *b.* Nectaries longer than the style, both more or less dusky.
    - *c.* Abdomen of the winged individuals dusky or reddish; antennæ more than half as long as the body.
      - *d.* Body red or dusky-reddish, with two pruinose spots on base of abdomen .... *cephalanthi.*
      - *dd.* Body dusky, without pruinose spots .... *cornifoliæ.*
    - *cc.* Abdomen of winged individuals green or yellowish-green.
      - *d.* Antennæ half as long as the body; nectaries as long as the tarsi; stigma short (Walsh) .... *maidis.*
      - *dd.* Antennæ two-thirds as long as the body; nectaries scarcely half as long as the tarsi .... *brassicæ.*
  - *bb.* Nectaries and style green, subequal; as long as the tarsi .... *atriplicis.*

APHIS LONICERÆ, n. sp.—*Winged individuals:* Green, often with two darker green longitudinal stripes. Head and thorax brownish. Antennæ about as long as the body; frontal tubercles short, but distinct; apical joint filiform, as long as the two preceding taken together. Rostrum reaching below the second pair of coxæ. Wings hyaline; stigma rather long. Nectaries scarcely projecting above the surface of the abdomen. Lateral edges of the abdomen with four or five very short, green, mammiform tubercles. Style not perceptible. Length 2.54^{mm}; to tip of wings 4.57^{mm}.

On young twigs and leaves of *Lonicera*. Living in colonies, covered with an abundant pulverulent secretion; May—July, St. Louis, Mo.

APHIS PRUNIFOLII, Fitch, N. Y. State Agric. Trans. 1854, p. 826.

It is doubtful whether *prunifoliæ* Fitch is identical with *pruni* Koch; but even should they prove to be indentical, it has not yet been satisfactorily shown that Koch's name has precedence. Were the dates on the title-pages of these two books correct, Fitch would have three years' priority; but from what Carus and Engelmann say about Koch's work, it is probable that the second number was published in the latter half of 1854. The exact date of Fitch's article I have been unable to ascertain. At Saint Louis, this species occurs only on varieties of native Plums.

APHIS CANDICANS, Fitch.

Professor Thomas's citation of Fitch's name as the describer of this species is doubtless a clerical error, as no such species as *A. candicans* has ever been described, and the only other mention of the name that we have been able to find is that given in a compiled article in Ill. St. Hort. Soc. Trans. x, p. 169 (1877), where it is printed without giving either description or authority. Professor Thomas informs me that he feels sure that he has seen some description of this species by Fitch, but is unable to say where.

APHIS HELIANTHI, n. sp.—*Apterous individuals:* Varying from pale green to dark green, with various irregular and variable darker shadings on the abdomen, the most constant and conspicuous of which is a dark green transverse band on the segment above the nectaries. Nectaries dusky; style, at least the apical two-thirds, pale dusky. *Winged individuals:* Head and thorax jet-black; abomen green, with a transverse band on the segment above the nectaries, and occasionally with some darker spots on the margin. Antennæ two-thirds as long as the body, entirely black; third joint as long as the two preceding taken together; fourth and fifth joints subequal. Nectaries subcylindric, pale dusky, hardly reaching the base of the style, and less than twice the length of the tarsi. Wings hyaline; venation normal. Length 1.77^{mm}; to tip of wings 3.04—3.29^{mm}.

On stems and leaves of Helianthus, Saint Louis, Mo.

Rhopalosiphum, Koch.

Similar to *Aphis*, but with the nectaries clavate.

RHOPALOSIPHUM SALICIS, n. sp.—*Winged individuals:* Head and thorax dusky; abdomen green, with various irregular, darker green markings. Antennæ about half as long as the body, not mounted on frontal tubercles; the third and fourth joints somewhat dentate; apical joint half as long again as the preceding; third and fourth joints often subconnate. Nectaries light green, reaching to the tip; the basal portion slender, expanding at the middle to twice its former diameter, and again suddenly contracted at the mouth, which is furnished with the usual annulus. Tail yellowish, about one-third as long as the nectaries.

Length 1.52mm; to tip of wings 3.04mm. Apterous individuals entirely pale green, with two darker green dorsal vittæ.

On the under side of leaves of *Salix lucida*, *S. nigra*, and *S. babylonica*. June, Saint Louis, Mo. This species comes under *Siphocoryne* Pass., but I do not think that the characters given by Passerini justify its separation from *Rhopalosiphum* Koch.

RHOPALOSIPHUM RHOIS, n. sp.—*Winged individuals:* Antennæ a little longer than the body, mounted on very inconspicuous tubercles; joints proportioned as usual; seventh joint a little longer than the two preceding taken together. Nectaries three times as long as the slender style; the diameter of the apical two-thirds in normal specimens nearly twice the basal diameter; the apex contracted to about the same diameter as the base, and with the mouth very slightly flaring.

Length 1.52—2.02mm; to tip of wings 3.81mm.

This interesting species was collected some years ago on an undetermined species of Sumach. The only note of its colors that I have is that the general color is reddish-brown.

Individuals occasionally occur having one of the nectaries lacking the basal constriction, and I have seen a single specimen having one of its nectaries subcylindric.

Drepanosiphum, Koch.

Rostrum short.

Antennæ long and slender, seated on frontal tubercles; third and setaceous seventh joint long.

Nectaries long, enlarged beneath towards the base.

Style inconspicuous or none.

Wings long.

Front wings with four oblique veins; the cubitus twice forked; marginal cell elongated towards the apex of the wing.

Hind wings with two discoidals.

Habits sporadic.

Professor Passerini is evidently in error in uniting this genus with *Siphonophora*. Its structure, habits, and the non-existence of viviparous apterous females point towards a relationship with the genus *Callipterus*, together with which it may be considered as forming a group in the *Aphidinæ*.

DREPANOSIPHUM ACERIFOLII (Thos.).
Siphonophora acerifoliæ, Thos. Bull. ii, Ill. St. Lab. Nat. Hist.
Siphonophora acericola, Thos. (icon. l. c.).

The antennæ are longer and the marginal cell broader than in any previously described American Aphid. The nectaries reach about to the tip of the abdomen, and are suddenly dilated at base to twice the diameter of their apices. The stigmal vein is usually enlarged at base for a distance equal to the breadth of the stigma. The dorsal tubercles, though very characteristic, are not sufficient to warrant a generic separation. Some species of *Callipterus* have somewhat similar processes, and in some forms of *Phylloxera Rileyi* the tubercles are proportionally as great. The fore tibiæ have each a short robust tubercle on the front edge, close to the knee. Hairs on the dorsum of apterous individuals capitate. Normal specimens in this locality have the cubitus and stigmal veins lying in more or less distinct brown bands; in variety *hyalinus*, the wings lack these brown shadings, but do not differ otherwise.

Callipterus, Koch.

Rostrum short.

Antennæ not on frontal tubercles, or else on very short ones, seven-jointed; transition from the sixth to the seventh joint very gradual.

Nectaries short, often scarcely perceptible.

Style short, enlarged at apex.

Wings deflexed; front wings with the stigmal vein much curved, not robust, usually more or less hyaline; cubital vein springing from near the base of the stigma; second discoidal sinuous.

Hind wings with two discoidals.

Body elongate, slender, of very pale colors.

Habits sporadic.

This genus seems to form a sort of transition between the *Aphidinæ* and *Lachninæ*, and should be placed in the former section principally on account of the shortness of the rostrum. Several divisions of *Callipterus* have been proposed, based on the relative length of the sixth and seventh antennal joints, but in such species as I have examined this character seems particularly variable and not deserving the importance which has been attached to it. In the species known to me, and probably in all European species, the wings are deflexed, but according to Fitch the species described by him have the wings horizontal. I was at first inclined to doubt the accuracy of this statement, but as it is a character very easy to observe, and as Dr. Fitch mentions it on two separate occasions, I do not see how he could possibly have made a mistake. Further investigation may possibly prove that his species do not appertain to this genus. As I have never been able to find viviparous apterous females, I consider it very probable that insects belonging to this genus acquire wings before producing living young.

A. Dorsum of winged individuals with spine-like tubercles .... *C. ulmifolii*, n. sp.
AA. Dorsum without spine-like tubercles.
  a. Marginal cell dusky.
    b. Middle tibiæ pale yellow. Femora pale yellow .... *C. walshii*, n. sp.
    bb. Tibiæ black. Apical portion of femora black .... *C. bella* (Walsh).
  aa. Marginal cell hyaline.
    b. Wings with transverse, shaded bands.
      c. Abdomen with conspicuous dusky spots .... *C. discolor*, n. sp.
      cc. Abdomen yellow, concolorous, or with very faint transverse bands. *C. asclepiadis*, n. sp.
    bb. Wings subhyaline.
      c. Nectaries distinct.
        d. Dusky shadings at tips of veins; a dusky mark at base of stigmal vein. *C. punctata*, n. sp.

dd. Wings hyaline.
  e. Apical joint of antennæ a little longer than the sixth. Veins whitish. *C. hyalinus*, n. sp.
  ee. Apical joint of antennæ three times as long as the sixth. First and second discoidals black .... *C. betulæcolens*, n. sp.
cc. Nectaries not perceptible.
  d. Wings hyaline... *C. caryæ*, n. sp.
  dd. Veins bordered with brown.. *C. quercicola*, n. sp.

CALLIPTERUS ULMIFOLII, n. sp.—Pale whitish-yellow. *Apterous individuals:* Tubercular, with capitate hairs, which disappear when the insect acquires wings. *Winged individuals:* Antennæ as long as the body; third, fourth, and sometimes the fifth joint slightly dusky at apex; apical joint a very little longer or shorter than the sixth. Wings hyaline; all of the veins, and especially the stigmal vein, subhyaline. Dorsum with four long, spine-like tubercles on its basal portion, and with various shorter tubercles on the apical portion. Length 1.77^{mm}; to tip of wings 3.04^{mm}.

On the under side of leaves of *Ulmus americana*, May—June. Closely allied to the European *C. quercus*, which has also four dorsal tubercles.

CALLIPTERUS WALSHII, n. sp.—*Winged form:* Bright yellow. Antennæ, with the tips of joints 3 to 6, black; seventh joint more than twice as long as the preceding. Thorax with a lateral black vitta extending from the eye to the wing-insertions. Femora pale whitish-yellow; fore tibiæ black; middle tibiæ faintly dusky; hind tibiæ more dusky than the middle pair. Tarsi and tips of tibiæ black. Nectaries yellowish, half as long as the tarsi. Wings hyaline. Front wings with the entire costa as well as its nervures black to the tip of the stigma, whence there extends a marginal dusky vitta, as wide as, or a little wider than, the costa at base and middle, but tapering at the tip and extending a little beyond the upper furcal of the cubitus. The stigmal vein lies entirely in this vitta, and curved so as to make the width of the marginal cell just equal to the distance between the apex of the stigma and that of the stigmal vein. Hind wings with a dusky costal vitta extending to the tip of the wing. Remaining veins of both wings slender and pale dusky. Length 1.27^{mm}; width of abdomen 0.5^{mm}; length of wing 1.77—2.03^{mm}; to tip of wings 2.28—2.54^{mm}.

May—July; Saint Louis, Mo.

On the under side of leaves of *Quercus rubra*.

Very closely related to *C. bella* (Walsh), with which it has been hitherto confounded.

CALLIPTERUS BELLA (Walsh).

Aphis bella, Walsh, Genera of N. Am. Aphidæ, Phil. Ent. Soc. 1862.

In some specimens, a series of capitate hairs can be detected on the margin of the abdomen of the unborn larvæ, which can be seen through the sides of the abdomen of the viviparous females. The young of some individuals seem to lack these hairs. A similar case has been noticed by Professor Riley in *Schizoneura fungicola?* (Walsh), in which the very young larvæ occur with and without capitate hairs. These hairs, on being very highly magnified, appear to be hollow, with a funnel-shaped opening at the apex.

Length 2.54—3.04^{mm}; of wings 3.55—3.81^{mm}; to tip of wings 4.06—4.31^{mm}.

CALLIPTERUS ASCLEPIADIS, n. sp.—*Winged form:* General color yellow. Antennæ filiform, mounted on very short tubercles, as long as, or a little longer than, the body;

apical joint much longer than the preceding. Nectaries yellowish, short. *Apterous individuals:* With capitate hairs, which disappear when the insect acquires wings; abdomen somewhat tubercular. *Winged individuals:* Wings blotched with dusky or dusky brown; an irregular broad band running from the apex of the second discoidal to the apex of the upper forklet, and another running from the apex of the first discoidal towards the base of the cubitus, but becoming obsolete before reaching that point. Stigma short, abruptly tapered at apex. Distance between the tips of the first and second discoidals one-half that between the tip of the second discoidal and the lower cubital branch. Distance between the base of the cubitus and the base of the stigmal vein nearly equal to the distance between the apices of the lower forklet and the lower branch of the cubitus. Length 1.27—1.52^{mm}; to tip of wings 2.54^{mm}.

May—August.

Very common at Saint Louis on *Asclepias cornuti* and *A. obtusifolia*. This is the first species belonging to this genus which has been found on a herbaceous plant.

Callipterus discolor, n. sp.—*Winged form:* Abdomen greenish or yellowish, with four rows of irregular brownish spots, often with smaller dots between them, the two middle rows becoming confluent just above the nectaries. Antennæ with the sixth joint less than the seventh. Wings with irregular dusky bands arranged similarly to those in *C. asclepiadis*. Length 1.77^{mm}; to tip of wings 3.29^{mm}.

Under side of leaves of *Quercus bicolor*. Saint Louis, Mo., May.

Callipterus punctata, n. sp.—*Winged form:* General color pale yellow; abdomen with faint dusky shadings, representing the dots of the preceding species. Sixth joint of the antennæ much less than the seventh. Wings hyaline, except dusky markings at the tips of the second discoidal, cubital, and stigmal vein, and a dusky mark at base of stigmal vein. Length 1.52—1.77^{mm}; to tip of wings 3.04—3.29^{mm}.

On the under side of leaves of *Quercus bicolor*. May—June, Saint Louis, Mo. It is possible that this is merely a variety of *C. discolor*, but I have never succeeded in finding intermediate forms.

Callipterus hyalinus, n. sp.—*Winged form:* General color pale yellowish. Apterous individuals with the usual capitate hairs. Seventh joint of the antennæ longer than the preceding. Wings hyaline, without any markings, or with a scarcely perceptible shading at the tips of the wings. Stigma rather long, the distance between the base of the stigmal vein and the base of the cubitus being much greater than that between the tips of the lower forklet and lower cubital branch. Basal two-thirds of the stigmal vein subhyaline. Second discoidal not so much curved as in *C. punctata*. Length 1.77—2.02^{mm}; to tip of wings 3.04^{mm}.

On the under side of leaves of *Quercus imbricaria*, to which species I believe it is confined. May—June, Saint Louis, Mo.

Callipterus betulæcolens, n. sp. *Aphis betulæcolens?*, Fitch, N. Y. Catl. Hom. p. 66.—*Winged individuals:* General color yellow; antennæ, first and second joints entirely yellow, the apical half of the remaining joints more or less dusky. Dorsum uniform yellow, without tubercles; wings hyaline; costal and subcostal veins whitish; first and second discoidals black. Stigma yellowish; basal two-thirds of the stigmal vein obsolete; apical portion hyaline, subobsolete. Nectaries yellow, a little fuscous, fully as long as the tarsi. The rostrum barely reaches the middle coxæ. Length 2.02^{mm}; to tip of wings 3.81^{mm}.

On the under side of Birch leaves. June, Saint Louis, Mo.

Dr. Fitch's description of *A. betulæcolens* is not sufficiently exact to enable one to recognize the species. It is, however, probable that it is distinct, as the measurement he gives would make his species slightly larger than the present one; besides, were they identical, it would be rather singular that Dr. Fitch should omit to mention the obsolete stigmal vein, and at the same time be at the pains to mention that the base of the cubitus was hyaline.

I am unacquainted with *Calaphis betulella* Walsh; but, unless there are other distinguishing characters, the mere absence of the stigmal vein will not be sufficient to separate *Calaphis* from *Callipterus*, as there is a complete series of transitions between the two.

CALLIPTERUS CARYÆ, n. sp.—*Winged form:* General color pale yellow; tips of the antennal joints black; legs entirely pale whitish. Antennæ a little shorter than the body; seventh joint equal to or one-third longer than the preceding; fifth joint as long as eth two following taken together. Nectaries not perceptible. Rostrum not reaching to the middle coxæ. Wings hyaline; veins pale; stigma rather short and blunt at apex. Stigmal vein subobsolete, its course being only traced with difficulty. The distance between the apex of the lower cubital branch and that of the second discoidal equal to about one-half the distance between the apices of the first and second discoidals. Apterous viviparous females and pupæ with four longitudinal rows of tubercles, each mounted with a capitate bristle.

Leaves of Walnut, Hickory, and Pecan. June—July. Saint Louis, Mo.

CALLIPTERUS? QUERCICOLA, n. sp.—*Winged form:* Antennæ about half as long as the body; not mounted on frontal tubercles; remote at base; third, fourth, and fifth joints equal in length; transition from the sixth to the seventh joint exceedingly gradual; seventh joint about half as long as the preceding. Rostrum short, not reaching the second coxæ; apical joint very acute. Nectaries reduced to mere openings. Style none. Wings with the veins bordered with brown. Stigma rather short, and blunt at apex; the cubital vein arising from its base. Stigmal vein not so much curved as usual in this genus, not hyaline; distance between the base of the cubitus and that of the stigmal vein equal to the distance between the furcals and less than the distance between the base of the cubitus and that of the second discoidal. Second discoidal not sinuous. Body rather elongate. Length 1.77mm; to tip of wings 2.79mm.

It is with considerable doubt that I place this species in the genus *Callipterus*. It is very probable that it should be placed under *Asiphum;* but the only description of this genus which has been published is that given by Koch, and, like the other generic descriptions which were made from memory after the loss of his eyesight, is somewhat unsatisfactory. The following is a translation of the salient points in his description:

Asiphum, Koch.—"Beak short. Antennæ rather short, the third, fourth, and fifth joints subequal, the apical joint very small, scarcely perceptible." Of this interesting species, I have only seen two winged specimens, mounted on a slide, which was communicated by a correspondent with the information that it occurred at Saint Louis on Oak.

Chaitophorus, Koch (emend.).

Similar to *Aphis*, but with the antennæ and body distinctly pilose.
Style tubercle-like.

CHAITOPHORUS VIMINALIS, n. sp.—*Apterous individuals:* Varying from pale green to light yellow, with two darker vittæ on the abdomen, which are often obsolete. Entire insect covered with long white hair. *Winged individuals:* Head and thorax black; abdomen black, except the margins and style, which are yellow. Nectaries a little longer than thick, yellowish, often slightly fuscous. Antennæ hairy; seventh joint filiform, almost as long as the three preceding taken together. Wings hyaline. Length 1.52^{mm}; to tip of wings 2.54^{mm}.

On young twigs and leaves of *Salix lucida and S. babylonica.* The venation of the wings is exceedingly variable; in one abnormal specimen I have observed a robust transverse vein running from the middle of the second discoidal to the base of the lower branch of the cubitus, thereby forming a closed trapezoidal cell.

CHAITOPHORUS SMITHIÆ, n. sp.—*Winged form:* General color dusky reddish. Wings hyaline; venation very variable. Nectaries two-thirds as long as the tarsi, vasiform, contracted at the base, expanding in the middle, and again contracted at the apex; the mouth flaring. Antennæ a little over half as long as the body, the third joint the longest, the fourth and fifth subequal, and the sixth joint two-thirds as long as the preceding. Seventh joint slender, very little longer than the preceding. Rostrum reaching the third pair of coxæ. Length 2.28^{mm}; to tip of wings 4.56^{mm}.

On leaves of *Salix alba.* May—June. Peoria, Ill. (Miss E. A. Smith).

This species comes under *Cladobius* Koch, a genus which does not seem sufficiently distinct from *Chaitophorus.*

Though the shape of the nectaries is very remarkable, it seems to me scarcely sufficient to justify a generic separation.

CHAITOPHORUS QUERCICOLA, n. sp.—*Apterous individuals:* Dorsum greenish, with four rows of short tubercles, all of which, except a few in the side-rows, are black; their apical circumference with from three to five bristles; the two middle rows of tubercles stop at the head, but the two lateral rows are continued by smaller tubercles until near the base of the labrum. Rostrum reaching the second coxæ. Nectaries yellow, about as long as the tarsi, slightly enlarged at base, the mouth conspicuously flaring. Style not perceptible. *Winged individuals:* Antennæ very slightly pilose; fourth joint subequal to the fifth and two-thirds as long as the third joint; sixth about half as long as the preceding, and very little longer than the seventh. Wings with the stigma and veins much as in *Ch. populicola;* the veins lying in narrow dusky bands. Length of apterous individuals 1.52—2.02^{mm}; length of wing 2.54^{mm}.

On the under side of the leaf near the midrib. *Quercus prinus.* May—June. Peoria, Ill. Of this interesting species, I have seen a number of apterous individuals, but only a single winged specimen, which was mounted on a slide kindly communicated by Miss E. A. Smith of Peoria, Ill. The dorsum of the winged individual is probably not tubercular, but this cannot be decided with certainty on account of the manner in which the specimen is mounted.

Though the antennæ of this species are not sufficiently pilose to justify its being placed in *Chaitophorus*, its general appearance seems to point to this as its rightful position.

Art. II.—The Relations of the Horizons of Extinct Vertebrata of Europe and North America.

By E. D. Cope.

The history of the succession of life upon any one portion of the earth's surface is replete with matter for speculation. It shows us a series of faunæ succeeding each other, each of which, in many instances, commences without previous announcement in the forms of older periods, and disappears without leaving representatives in later ones. With this basis of fact, which naturally enough has been furnished by the longest explored and best known portion of the earth, Europe, we turn to other lands with the hope of obtaining further light upon a subject so full of mystery. These types of life, did they originate in a single centre, from which they disseminated themselves? and, if so, did each form originate in a region of its own or not? Or, did the same types of generic structure appear at different points on the earth's surface independently; and, if so, whether cotemporaneously, or at different times?

For a solution of these and similar questions, we naturally look to a comparison of the facts first established, with those obtained more recently by exploration in other regions. In this quest, no portion of the earth offers greater promise of results than America. As the second great continent, separated from the other by the greatest possible water surface, we anticipate the widest diversity in the character of its life-history. If the types of life have originated independently, we will find evidence of it by studying American palæontology; if their origin has been through gradual modification, America should furnish us with many intermediate faunæ.

The identification of the generic types of North American *Vertebrata* has now advanced to a point which renders such a comparison possible. Although the subject is in its infancy, the following pages will show that an important contribution to it can be now made. The comparisons instituted in this paper commence with the coal-measures, and with the *Batrachia* of that period. As regards the palæozoic fishes, I have not yet devoted that attention to them which is necessary for their discussion, and I refer to the papers of Newberry for several important identifications of genera as common to the two continents.

The structure of the *Batrachia* of the coal-measures is not yet sufficiently well known to enable the most exact comparisons to be made, but close parallels, if not identities, of genera exist. Such are the

Oëstocephalus and *Ceraterpeton* of Ohio as compared with the *Urocordylus* and *Ceraterpeton* of Great Britain.

The Permian vertebrate fauna which I discovered in Illinois and Texas, exhibits close parallels, but not yet generic identity, in the two continents. Thus, the American *Clepsydrops* and *Dimetrodon* are near to the *Deuterosaurus* of Perm in Russia, and the *Lycosaurus* of the mountains of South Africa. The Texan genus *Pariotichus* may, with further information, prove to be identical with *Procolophon* Ow. from the Tafelberg. Humeri of the type discovered by Kutorga in Russia, and by Owen in South Africa, are found in North America, and the same remarkable type has been recently discovered by Gaudry in France. The peculiar type of Labyrinthodont vertebræ described by me under the genus *Rhachitomus* from Texas has been discovered by Gaudry in France. The present indications are that close similarity between the faunæ of this period in Europe and America will be discovered. Nevertheless, up to the present time no representatives of the striking American forms *Diadectes*, *Bolosaurus*, *Empedocles*, and *Cricotus* have yet been found in any other continent.

As regards the Triassic fauna, it differs from that of the Permian in being better known in Europe than America. As marine Trias is little developed in North America, so the vertebrate fauna of the Muschelkalk has not been discovered in the latter country. It is otherwise with the Keuper. The characteristic genus of that epoch, *Belodon*, existed in America, and parallels, if not identity, exist in the genera *Thecodontosaurus* and *Palæosaurus*. These are known in America from teeth only. The reptiles are accompanied in North America, as in Europe, by Stegocephalous *Batrachia*, mostly Labyrinthodonts, but their generic affinities are yet unknown.

The great Jurassic faunæ are as yet but sparsely represented in North American palæontology. The marine *Vertebrata* of the Lias are either unknown or are represented by a few provisional identifications of unsatisfactory fragments. We do not yet know any deposits in North America which contain the typical reptilian genera *Plesiosaurus*, *Ichthyosaurus*, *Pliosaurus*, and *Dimorphodon*, or the fishes of the *Dapediidæ*. This formation, so important in Europe, is almost omitted from the North American series. A few more characteristic fossils of the Rocky Mountain region represent the Oölite, particularly the Upper Oölite, while *Teleosaurus* and *Steneosaurus*, and their allies, are not yet known from North American beds. Strata said to be included in the Dakota (which on the evidence of plants and invertebrate fossils has been placed at the bottom of the Cretaceous series) have produced a genus not yet distinguishable from *Megalosaurus*. This genus has not been identified beyond doubt from above the Oölite in England. From the same beds in the Rocky Mountain region come genera which nearly resemble the one from the English Oölite (Forest Marble) called by Phillips, *Cetiosaurus*, and the genus from the Oxfordian of Honfleur, called by von Meyer, *Streptospondylus.* Beyond this no comparisons can be made, and we therefore pass to the rich fauna of the Kimmeridge. North America cannot show such records of this epoch as have been found in Europe. There are no *Archæopteryx*, *Rhamphorhynchus*, nor *Pterodactylus;* no *Leptolepis*, *Thrissops*, nor other of the numerous fishes of Solenhofen. The *Omosaurus* has, however, some very close relatives in the supposed Dakota beds of the Rocky Mountains. No remains of that primitive Marsupial fauna which occurs in the Purbeck have yet been detected in the Western Continent. A partial representation of the Wealden fauna of Europe is found in the beds of the Rocky Mountains mingled with the types of the Oölite and Kimmeridge already mentioned. The relationships of this fauna to those of the European Jurassic series may be thus exhibited:

American.	**European.**
CAMARASAURUS BEDS.	WEALDEN.
?	*Iguanodon.*
? *Hypsilophodon.*	*Hypsilophodon.*
	Hylæosaurus.
? *Cetiosaurus.*	*Cetiosaurus.*
Camarasaurus.	*Eucamerotus.*[*]
	Ornithopsis.
Amphicœlias.	
? *Goniopholis.*	*Goniopholis.*
	KIMMERIDGE.
Hypsirhophus.	*Omosaurus.*
Caulodon.	? *Caulodon.*[†]
	OXFORD.
Epanterias.	*Streptospondylus.*
	OÖLITE
	"*Cetiosaurus.*"
? *Megalosaurus.*	*Megalosaurus.*

From the above table it will be seen how difficult it is at the present to parallelize the related beds of the Jurassic periods of the two continents at the present time. All that can be said is that many types resembling[‡] nearly those of different horizons of the European Jurassic are found to have lived together or near together in the Rocky Mountain region of North America.

That the Cretaceous fauna of North America was the richest in the cold-blooded *Vertebrata* is indicated by the present state of discovery. The ocean of the interior of the continent deepened from the beginning of the period until the epoch of the Niobrara, and then gradually shallowed until the elevations of the bottom began to divide the waters. The closing scenes of this great period were enacted amid a labyrinth of lagoons and lakes of brackish and fresh water, whose deposits form the beds of the Laramie epoch.

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[*] *Chondrosteosaurus* Owen.

[†] *Iguanodon præcursor* Sauv.

[‡] A near affinity has been shown by Professor Owen to exist between *Eucamerotus* and *Camarasaurus.* Professor Owen believes these genera to be identical; but the neural spines of the anterior dorsal vertebræ are very different, being single in the former, and double in the latter.

The fauna of the deep-sea epoch, the Niobrara, is the best known. Here the remains of *Pythonomorpha* constitute its prevailing characteristic, while *Elasmosaurus* and *Polycotylus*, with but few species, represent the numerous *Sauropterygia* of Europe. Crocodiles were apparently wanting, while turtles and a peculiar group of *Pterosauria* were only moderately abundant. The fish fauna was very rich and varied. Here the *Saurodontidæ*, like the Molluscous family of the *Rudistes*, appeared, and as soon disappeared, accompanied by the peculiar form, *Erisichthe*, and the family of *Stratodontidæ*. The genera of Mount Lebanon, *Leptotrachelus* and *Spaniodon*, occur in this bed in Dakota; but the closest parallelism is exhibited with the Lower Chalk or Turonian of Western Europe. The general *facies* of the reptilian fauna is that of the Lower Chalk, and there is little doubt that several genera are identical in the two continents, e. g. *Elasmosaurus*. The apparent peculiarity of the Chalk in America is the abundance of forms (four genera) of *Pythonomorpha* with numerous species, while but two genera have yet been found in Europe, and the presence of birds, with *biconcave* vertebræ, and teeth. This interesting type, which was first discovered by Seeley in the genus named by him *Enaliornis*, and afterwards found by Marsh to possess teeth, has been found at a lower horizon in England, the Upper Greensand. But in England, France, and Westphalia occur the genera of fishes above mentioned, as *Portheus*, *Ichthyodectes*, *Saurodon*, *Saurocephalus*, *Erisichthe*, *Empo*, *Pachyrhizodus*, *Enchodus*, *Leptotrachelus*, etc. This close relationship of the horizons permits an identification, and it is the first instance which appears to me to be susceptible of satisfactory demonstration.

The next horizon of the Cretaceous which has yielded many vertebrate remains in North America is the Fox Hills formation (including the Fort Pierre bed). Here the genus *Mosasaurus* appears in America, and is accompanied by the earliest crocodiles with procœlous vertebræ, and by numerous marine turtles which partake of the characters of both *Chelydridæ* and *Cheloniidæ*, which I have called the *Propleuridæ*. *Beryx* appears first here in America. The predominant genus of fishes is *Enchodus*, and the principal *Dinosauria* are *Lælaps* and *Hadrosaurus*. This horizon has been parallelized with the Maestricht of Europe, and several genera are common to the two beds; such are *Mosasaurus* and *Enchodus*. The genus *Hadrosaurus*, and the family of turtles I have called the *Adocidæ*, remain undiscovered in Europe; hence the identity of faunæ cannot be established.

The lacustrine beds, or summit of the American Cretaceous series, the Laramie of Hayden, present the remains of a populous fauna and a rich flora. The students of the palæobotany have declared this flora to be of Eocene, and the later portions of Miocene character, while the lacustrine constitution of the strata has influenced the stratigraphic geologists to concur in the view that the formation should be arranged with the Tertiary epochs. That the fauna was of a mixed character is the result of a study of its vertebrate fossils. The predominant type in North America was the *Dinosauria*, which were abundant in species and individuals, and this fact alone will suffice most palæontologists as a reason for referring the epoch to the Cretaceous series. The genera of *Dinosauria* (*Palæoscincus*, *Cionodon*, *Diclonius*, *Monoclonius*, *Dysganus*, etc.) have not yet been found in any other part of the world. Mingled with them were species of crocodiles and turtles of indifferent character, while a number of other forms existed which had a limited range in time, and hence are important indicators of stratigraphic position. Such are the genera of fishes, *Myledaphus* Cope and *Clastes* Cope, which have been found also near Reims, France, by Dr. Lemoine, in the Sables de Bracheux, which are regarded as the lowest Tertiary. Such is the curious Saurian type *Champsosaurus* (Cope) (*Simœdosaurus* Gerv.), and the turtle genus *Compsemys* Leidy, which Lemoine finds a little higher up in the series, in the Conglomerate of Cerny, which is in the lower part of the Suessonian. In France, a genus of the Laramie, *Polythorax*, extends into the Lignite or upper *Coryphodon* bed of the Suessonian. Thus the Laramie is intercalated by its characters between the Cretaceous period on the one hand and the Tertiary on the other, and its fauna includes genera and orders of both great series. These relations may be exhibited in tabular form as follows. I here include the faunæ of the Sables de Bracheux and of the Conglomerate of Cerny as one, since both possess the types of the Laramie, while the horizon of the Lignite of Meudon, or the Suessonian, does not.

Sables de Bracheux and Conglomerate de Cerny.	Laramie.
a. Tertiary.	
Lophiochœrus.	
Plesiodapis.	
Pleuraspidotherium.	
Arctocyon.	
Clastes.	*Clastes.*
β. Peculiar.	
Champsosaurus.	*Champsosaurus.*
Compsemys.	*Compsemys.*
Myledaphus.	*Myledaphus.*
	Scapherpeton.

SABLES DE BRACHEUX AND CONGLOMERATE DE CERNY.	LARAMIE.
γ. CRETACEOUS.	
	Palæoscincus.
	Dysganus.
	Monoclonius.
	Diclonius.
	Cionodon.
	Lælaps.
	Aublysodon.

If the Conglomerate of Cerny is the same horizon as the Conglomerate of Meudon, we must add *Coryphodon* to the upper left-hand column, and probably *Gastornis* also. The result is clear that the French and American formations together bridge most completely the interval between the Cretaceous and Tertiary series, as has been anticipated by Hayden, in America, on geological grounds. It is also evident that another formation must be added to the series already recognized in France, viz, the Laramie or Post-Cretaceous. This will be defined as the beds of the genera *Champsosaurus* and *Myledaphus*. In France, the presence of mammalia will characterize the formation as a subdivision, for which it is probable that the name Thanetian must be retained; while to the American division, which is characterized by the presence of *Dinosauria*, the name of Laramie beds has been given.

The Eocene fauna is so varied, especially in Europe, that it is necessary to compare the divisions separately, as in the case of the Cretaceous. Thus, the fauna of the Suessonian is quite as distinct from that of the Calcaire Grossier and Gypse (Parisian and Tongrian) in France as are those of the Wasatch and Bridger epochs in North America.

I have already identified the Wasatch with the Suessonian or Orthrocene, on account of the community of the following genera in the two continents: *Coryphodon*, *Hyracotherium*, *Amblyctonus*, *Clastes*, and a form of birds close to *Gastornis*. I can now add *Phenacodus*, *Orotherium* (Cope), and very probably *Hyopsodus*, *Adapis*, *Opisthotomus*, and *Prototomus*. But, as above mentioned, in the lower beds of the Suessonian in France occur genera which are, so far as yet known, wanting in the Wasatch of America, but present in the beds of the Laramie. Such are two genera in the Conglomerate of Cerny, and four genera in the lower Sables de Bracheux. In the former bed, they are associated with the mammalian genera *Lophiochœrus*, *Plesiodapis*, *Pleuraspidotherium*, and *Arctocyon;* and in the lowest, with a form referred with doubt to *Hyracotherium*. Thus the generalization may be made that the characteristic genera of reptiles and fishes of the Laramie of North America are in America associated with Cretaceous *Dinosauria*, and not with *Mammalia;* while in Europe they are associated with *Mammalia*, and not with *Dinosauria*. In arranging the Laramie Group, its necessary position is between Tertiary and Cretaceous, but on the Cretaceous side of the boundary, if we retain those grand divisions, which it appears to me to be desirable to do. The reasons for retaining it in the Cretaceous are two, viz: (1) because *Dinosauria* are a Mesozoic type, not known elsewhere from the Tertiary; (2) because *Mammalia* (should they be found in the future in the Fort Union) are not equal as evidence of Tertiary age, since they have been also found in Jurassic and Triassic beds. The parallelism of the American Wasatch with the Upper Suessonian of France is the second identification which may be regarded as provisionally established. The only discordant elements at present known are the *Tæniodonta* of the Wasatch, which have not been so far found in Europe, and the genus *Lophiodon*, which is unknown in America.

Above the Suessonian, a divergence in the characters of the European and North American faunæ commences, and continues to be marked throughout the remainder of Tertiary time. So far as the *Mammalia* are concerned, the diversity between the continents was greater during the periods of the Upper Eocene and Miocene than at the present era. During these periods, a limited number of genera, common to the two continents, was associated with numerous genera in the one which did not exist in the other. As a consequence, our palæontological means of identification of the horizons are limited to a restricted list, and the task of applying a uniform nomenclature is, under the circumstances, difficult. Another difficulty in the way of determining the place of the American beds in the European scale consists in the fact that the physical history of the two continents during the Tertiary period appears to have been different. In America, the changes of level appear to have been more uniform in character over large areas. Each deposit has a wider geographical extent, and the fauna presents less irregular variation. In Europe we have a great number of comparatively restricted deposits, each of which differs from the others in possessing more or less peculiarity of fauna. After a study of these faunæ, their natural arrangement in Europe into three series, Eocene, Miocene, and Pliocene, does not appear to rest on any solid basis. This is especially true of the distinction between the first two; and authors are at variance as to the point of demarkation between the last two. Thus, the Tongrian is the summit of the Eocene according to Renevier, while Gaudry, with Filhol and others, places it at the base of the Miocene. One opinion is as well supported by facts, as now interpreted, as the other.

Let us now consider the nature of the evidence on which we should rely in classifying faunæ and the deposits which contain them. We are accustomed, at present, to rely for our definitions upon all the faunal peculiarities upon which we can seize: the period of appearance of certain types; the duration of certain types; and the disappearance of certain types, depending on orders, families, and genera for the major divisions, and species at a given locality for the lesser. It is, of course, evident that either of the above-mentioned three criteria are variable quantities, since discovery is constantly extending our knowledge of the distribution of types. Hence the definitions are empirical and temporary. We must then, if we desire a stable system, examine the principles involved, and endeavor to discover definitions which stand on stronger foundations than those which we now possess.

As a matter of fact, the old definitions of epochs and periods are continually invalidated by new discoveries. As a matter of theory, this should be the case.

To the believers in the doctrine of derivation, the obliteration of faunal distinctions is not a cause of surprise. Such await with confidence the day when complete phylogenies will be possible, and at present regard the interruptions in the succession of life as local only. Will the result then be, that palæontology will cease to be available in the definition of ages and of deposits? I answer no, on various grounds. Interruptions in the succession of life in any given locality due to various causes have doubtless often occurred, and have left traces in the crust of the earth which are ineffaceable by discovery. But apart from this, one fact in this history is patent both to the friends and to the opponents of the doctrine of derivation. It is known that the world has witnessed, at every stage of its history, the extinction of some important type of life. Familiar examples are the *Placodermi* of palæozoic time, the various reptilian groups of Mesozoic time, and the *Amblypoda* of the Tertiary. Each minor subdivision of time offers its own record of persistences and extinctions of particular families and genera.

Now, all departments of biology compel us to recognize the law of classification, that the order of forms is from the less to the more generalized, from the simple to the more complex, and *vice versa*, whether the lines of succession be those of descent or of creative order; and this law is true in time as well as in classification. It follows from this, that all types of life are, at the time of their appearance, less distinct and more general in their characters than they are later in their history.

It also follows, as a consequence of the principle of descent, which states that the types of one age have taken their origin from generalized types of preceding ages, that there is no descent from the most specialized types; which is to say, conversely, that the genera, families, and orders whose extinction has been a marked feature of every geologic age have been the specialized types of those ages.

We now have a clue to a basis of a definition for faunæ, and hence for epochs, which discovery can safely build upon. The successive increments of structure by which an important modification of animal type is introduced preclude the possibility of exact determination of the time at which such type may be said to have *appeared*. Even where such a point may be arbitrarily fixed, the type must then be less characteristically represented than it is at the other limit of its existence, viz, the period of its disappearance.

For these reasons I must regard the latter criterion as the true one in the discrimination of the subdivisions of geologic time, while the point of the appearance of types must be looked upon as of provisional use only, and this quite independently of the changes which discovery will from time to time compel us to make in our knowledge of the distribution of life in time and space. It must, however, be borne in mind that disappearance may be due to two causes: first, to extinction; and, secondly, to modification; a distinction which is entirely essential. The case of disappearance by modification is identical with that of appearance by modification, and cannot be used otherwise in classification. It is then the period of extinction of types to which I have reference.

With these principles in view, we continue the comparison of the extinct faunæ of Europe and North America. If we take a general view of the Tertiary faunæ, we find that the following well marked types representing families and higher groups have become extinct, and have left no living descendants or successors: Among *Insectivora*, the *Lepticidæ* in North America; also the American Bunotherian groups *Tæniodonta* and *Tillodonta;* also the *Mesodonta* of both continents; of *Edentata*, *Macrotherium* and *Ancylotherium* in Europe, and the *Megatheriidæ* in North America; among the *Carnivora*, the *Hyænodons* and *Proviverræ*, with the *Machærodi ;* of *Ungulata*, the entire order of *Amblypoda*, which, however, doubtless disappeared in some of its members by modification; but its only known suborders, the *Pantodonta* and the *Dinocerata*, became absolutely extinct. Among *Perissodactyla*, both continents lost by extinction the *Chalicotheriidæ*, which terminated in a great development in North America; the genera *Hippotherium** and *Stylonus* of the line of the horses, and the *Rhinoceridæ*. Of *Artiodactyla*, two great divisions, representative of each other in the two continents, totally disappeared, viz, the *Oreodontidæ* and the *Anoplotheriidæ;* to which must be added the *Hyopotamidæ*. Of true ruminants, the most important type which has disappeared from both continents is that of the *Camelidæ*. Of Suilline genera, *Anthracotherium* and *Elotherium* may be looked upon as having left no persistent successors. Last of all, the *Proboscidea* retreated to the continents of the south.

In view of the complexity of the European record, I first present the relations of the above mentioned phenomena as displayed in the simpler American system. As the present essay commences with the earliest periods, I exhibit the succession in descending order on the page. The horizons of the Tertiary which present distinct terrestrial faunæ in North America have been named the Wasatch, the Bridger, the Uinta, the White River, the Loup Fork, the *Equus* beds, and the Champlain.

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* *Equus* came through *Protohippus*, the cotemporary of *Hippotherium*.

The types which became extinct* with the close of each of these epochs are the following:

- Wasatch.
  - *Gastornithidæ*
  - *Pantodonta.*
- Bridger.
  - *Baënidæ.*
  - *Tillodonta.*
  - *Mesodonta.*
  - *Proviverra.*
  - *Dinocerata.*
- White River.
  - *Leptictidæ.*
  - *Hyænodon.*
  - *Chalicotheriidæ.*
  - *Hyopotamidæ.*
- Loup Fork.
  - *Rhinoceridæ.*
  - *Hippotherium.*
  - *Stylonus.*
  - *Oreodontidæ.*
- Equus Beds.
  - *Megatheriidæ.*
  - *Machærodus.*
  - *Tapiridæ.*
  - *Elephas.*
  - *Camelidæ.*

The above table exhibits the present state of our knowledge: it will doubtless be much extended by future discovery, but not otherwise modified.

The numerous able writers on European vertebrate palæontology have more frequently recorded the appearance of types in defining their faunal divisions than their disappearance. The following table is compiled from the writings of Gervais, Gaudry, Pomel, Filhol, Renevier, and others, but is not as complete as I would desire.

- Suessonian.
  - *Pantodonta.*
- Parisian (Bruxellian, Bartonian, and Sestian).
  - *Palæophis* (Bruxellian).
  - *Proviverra.*
  - *Pterodon.*
  - *Mesodonta.*
  - *Lophiodon* (Bruxellian).
- Tongrian.
  - *Palæotheriidæ.*
  - *Chalicotherium.*
  - *Anoplotheridæ.*
  - *Elotherium.*
- Aquitanian.
  - *Hyænodon.*
  - *Hyopotamus.*
- Falunian.
  - *Anchitherium.*
  - *Anthracotherium.*
  - *Palæochœrus.*
  - *Cænotherium.*
- Oeningian.
  - *Ancylotherium.*
  - *Dinotherium.*
  - *Hippotherium.*
  - *Aceratherium.*
- Subapennine.
  - *Mastodon.*
  - *Tapiridæ.*
- Diluvial.
  - *Hyæna.*
  - *Machærodus.*
  - *Elephas.*
  - *Rhinocerus.*
  - *Hippopotamus.*

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*This means, as already mentioned, the forms which left no direct successors in the Nearctic and Palæarctic Faunæ.

The above tables show that the history of mammalian life in the two continents presents many points of resemblance; but that there is a great difficulty in correlating the epochs represented by the known faunæ. As regards the two primary divisions, Eocene and Miocene, they have no special *raison d'être*, as such faunæ as the Tongrian and Oeningian are absolutely transitional in their character. More detailed comparisons of the European and American faunæ bring out many relationships not displayed by the above tables, and which I will now briefly consider.

In the American Bridger, various genera of *Mesodonta* represent the few *Adapidæ* of the Parisian, the genus *Adapis** Cuv. being probably common to the two continents. The American *Anaptomorphus*, a true Lemur, has been found by M. Filhol in the Phosphorites, and named *Necrolemur*. The characters of the numerous *Carnivora* of the Bridger are as yet unknown. The *Stypolophus* of the Bridger is perhaps the *Prototomus* of the Wasatch, and this again has been discovered by M. Filhol† in France; while a very similar, if not the same, genus has been discovered in the Swiss Siderolitic, and named *Proviverra*. *Hyænodontidæ* probably occur in the Bridger. Nowhere in Europe do we find the *Dinocerata* and *Tillodonta* of the Bridger. *Palæosyops* is also unknown in Europe, but it plays the part in America of the *Palæotherium*, from which it does not greatly differ in structure. The latter genus is most largely developed in the Parisian, but is also characteristic of the Tongrian. *Hyrachyus* is the American *Lophiodon*, the difference between them being but slight: both are found in France; the former in the Lower Parisian, the latter in the Phosphorites. *Tapirulus*‡ Gerv. is a genus common to the Bridger and to more than one horizon of the Parisian. The squirrel-like rodents of the Bridger are like those of the Parisian, but they are not confined to either epoch. The character which distinguishes the Parisian most widely from the Bridger, besides the absence of the *Dinocerata* and *Tillodonta*, is the presence of numerous Selenodont *Artiodactyla*, as *Xiphodon*, *Cænotherium*, *Amphimeryx*, *Anoplotherium*, etc. These are of primitive type, it is true; the *Anoplotheriidæ* especially having probably four toes in the very short manus (*Eurytherium*), including the pollex, and three behind. They also display the character of a fifth crescent of the superior molars, which is wanting in the higher Selenodont types. But even these genera are absent from the Bridger. The *ensemble* is then, that the latter displays relationships backwards, or to the Suessonian, while the Parisian has a later *facies*, constituting an approach to the Tongrian and White River.§

The following table presents the relations of the Bridger fauna succinctly, but it is much less complete than we hope to make it when its numerous species now represented by catalogues of names are fully described. The Parisian is here regarded as including the divisions Bruxellian, Bartonian, and Sestian (Gypse).

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* *Notharctus* is undistinguishable from *Adapis* in inferior dental characters.

† It is described as *Cynohyænodon* with two species.

‡ Gervais, 1850; *Helaletes* Marsh, 1872.

§ See Ann. Rept. U. S. Geol. Surv. Terrs. 1873, pp. 461–2, where this view is proposed.

Parisian.	Bridger.
Didelphys.	*?Didelphys.*
Vespertilionidæ.	*Vespertilionidæ*
Plesiarctomys.	*Plesiarctomys.*
	Tillodonta.
Hyænodontidæ.	*Hyænodontidæ.*
Adapis.	*Adapis.*
Anaptomorphus (Phosph.).	*Anaptomorphus.*
	Dinocerata.
	Palæosyops.
Palæotherium.	
Lophiodon.	
Hyrachyus (Phosph.).	*Hyrachyus.*
Tapirulus.	*Tapirulus.*
Anthracotherium.	*Achænodon.*
Chœropotamus.	
Dichobune.	
Anoplotherium.	
Xiphodon.	
Amphimeryx.	

The rich Tongrian (Stampian) fauna is, according to authors, represented in the Sables de Fontainebleau, Puy en Velay, Ronzon, Hempstead, and Cadibona in Italy. We find here *Didelphys* in abundance, *Hyænodon*, *Amphicyon*, *Cynodon*, *Palæotherium*, *Paloplotherium*, *Chalicotherium*, and *Aceratherium*. Of *Artiodactyla*, the Suillines are *Anthracotherium* and *Elotherium*; the Selenodonts, *Hyopotamus* and *Gelocus*. This list is the nearest known counterpart of that of the fauna of the White River epoch of North America. To reproduce the latter, we must omit from the above catalogue the genera of *Palæotheriidæ*, and replace them by the allied Chalicotheroid *Menodus* and *Symborodon*, subtract *Anthracotherium*, and add the great body of the *Oreodontidæ*. Then there are included in the White River fauna the higher Selenodont Artiodactyles of the *Poëbrotheriidæ* and *Hypertragulidæ*, the corresponding types of which belong to the fauna of St. Gerand le Puy in France, or the Aquitanian epoch, which directly succeeded the Stampian. In Europe we have here *Dremotherium*, *Amphitragulus*, *Lophiomeryx*, *Dorcatherium*; in America, *Leptomeryx*, *Hypertragulus*, *Hypisodus*, and *Poëbrotherium*. It is curious that while *Leptomeryx* is also European,* it has not yet been found above the Phosphorites. Among Suillines, the *Palæochœrus*† of the Oregon White River beds has also not been found below the Aquitanian in Europe. But the American *Didelphys*,[*] *Hyænodon*, *Amphicyon*, *Elotherium*, and *Hyopotamus*, with the numerous Chalicotheroid species, show clearly that the White River fauna may be looked upon as a mixture of those of the Stampian and Aquitanian, the former of which is sometimes referred with reason to the Upper Eocene, while the latter is always left in the lowest Miocene. And the solution of this question of position as regards the White River beds appears to me to be at present by no means easy.[†] According to the system of Naumann, it should be called Oligocene.

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* I think M. Filhol's *Prodremotherium* is identical with *Leptomeryx*.

† *Thinohyus* Marsh appears to be the same.

Although Artiodactyles with Selenodont molars are far more abundant in both continents during this period than the last, a remarkable difference is to be observed between them. Those of Europe still largely consist of the types with five crescents, as represented by the numerous *Hyopotami* and *Cœnotheria*, while in America the modern four-crescent-bearing molar characterizes almost the entire suborder, the only exception being two species of *Hyopotamus*.

The following table will represent the relations of the White River fauna:

STAMPIAN AND AQUITANIAN.	WHITE RIVER.
Didelphys.	*Didelphys.*
	Leptictidæ.
Protomyidæ.	*Protomyidæ.*[‡]
	Saccomyidæ.[§]
Steneofiber.	*Steneofiber.*
Leporidæ.	*Leporidæ.*
Hyænodon.	*Hyænodon.*
Amphicyon.	*Amphicyon.*
Canis.	*Canis.*
	Temnocyon.
	Enhydrocyon.
Gulo.[‖]	*Gulo.*[‖]
	Dinictis.
Machærodus.	*Machærodus.*
	Chalicotheriidæ.
Palæotheriidæ.	
	Hyracodon.
	Aceratherium.
	Anchitherium.
Elotherium.	*Elotherium.*
Palæochærus.	*Palæochærus.*

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[*] *Herpetotherium* Cope; *Peratherium* Aym.

[†] See Ann. Report U. S. Geol. Surv. Terrs. 1873, p. 462, where the White River beds are determined as Lower Miocene.

[‡] *Ischyromys* Leidy.

[§] *Entoptychus* and *Pleurolicus* Cope.

[‖] *Amphictis* Pom.

STAMPIAN AND AQUITANIAN.	WHITE RIVER.
Anthracotherium.	
	Oreodontidæ.
Anoplotheriidæ.	
Hyopotamidæ.	*Merycopater.*
	Poëbrotherium.
Lophiomeryx.	*Hypertragulus.*
Amphitragulus.	
Leptomeryx (Phosph.).	*Leptomeryx.*
Dremotherium.	
	Hypisodus.

The Falunian epoch includes in the large sense the Langhian, Helvetian, and Tortonian divisions, embracing the rich deposits of the Orléanais, of Simorre, and of Sansan. We have here the true Miocene fauna, of which the following genera are characteristic: Edentata, *Macrotherium;* Proboscidea, *Dinotherium*, *Mastodon;* Perissodactyla, *Anchitherium*, *Listriodon;* Artiodactyla, *Palæomeryx*, *Dicrocerus*, *Procervulus;** Carnivora, *Amphicyon*, *Hyænarctos*, *? Machærodus;* Quadrumana, *Pliopithecus.* The ancient genera *Anthracotherium* and *Cænotherium* continue throughout, and the existing genera *Arvicola*, *Lutra*, and *Sus* appear. The succeeding epoch, the Oeningian, including with it the horizons of Epplesheim and Pikermi, presents the additional genera *Dorcatherium*, *Helladotherium*, several genera allied to *Antilope*, with *Hippotherium*, the huge edentate *Ancylotherium*, and the monkey *Mesopithecus.*

It is from these materials that we must determine by comparison the American Loup Fork epoch, whose deposits are widely spread, and whose fauna is of well-marked character. Although called by my predecessors Pliocene in age, I have insisted that it should be referred to the Miocene series, and I think that the evidence to that effect, which I have produced, will be found conclusive. Nevertheless, here, as in other American Tertiary horizons, the element of geographical peculiarity enters, and diminishes the number of identical types.

FALUNIAN.	LOUP FORK.
Steneofiber.	*Steneofiber.*
Macrotherium. *Ancylotherium.* }	*Morotherium.*
Amphicyon.	*Amphicyon.*†
Dinotherium.	*Cœnobasileus.*
Tetralophodon.	*Tetralophodon.*
Aceratherium.	*Aphelops.*
Anchitherium.	
Listriodon.	

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* Gaudry, 1878; *Dicrocerus* Cope, 1874 (not Lartet); *Merycodus* et *Cosoryx* Leidy, nomina nuda.

† *Canis ursinus* Cope.

Falunian.	Loup Fork.
Hippotherium (Oeningian).	*Hippotherium.*
	Protohippus.
	*Hippidium.**
Cœnotherium.	*Oreodontidæ.*
Anthracotherium.	
Palæomeryx.	*Blastomeryx.*
Dicrocerus.	
Procervulus.	*Procervulus.*
	Protolabis.
	Procamelus.

The existing genera mentioned as found in the Falunian fauna are paralleled by the *Dicotyles*, *Hystrix*, and *Mustela* of the Loup Fork beds. It is evident that this latter horizon retains in its *Oreodontidæ* the same traces of antiquity that the Falunian does in its *Cœnotherium*, but shows a more modern aspect in the omission of *Anchitherium* and its replacement by *Hippotherium* and *Protohippus*, and in the still more modern type *Hippidium.* Although but six genera of the two continents are determined as identical in the above table, yet others, which are facing on the same line, are very nearly allied. Other differences are geographical. The *facies* of the Loup Fork horizon is then a compound of that of the Falunian and Oeningian, or Middle and Upper Miocene.

In commenting on the above-described fauna in 1874,† I remarked that "the proper discrimination of American Pliocene remains to be accomplished." It was not long after that date that material for making the identification of this horizon on this continent first came into my hands. This was derived from the superior Tertiary of Oregon, and includes a considerable number of species of fishes, birds, and *Mammalia.* I published a list of some of the species in 1878.‡ The character of the fauna from that region coincides with that which has from time to time been unearthed in the caves and other Eastern deposits to such an extent as to lead us to suspect that the differences between them are geographical only. In Europe, the Pliocene, or Subapennine, includes, according to D'Orbigny (1855) and Gaudry (1878), the Plaisancian and Astian, which are represented at the following localities:

SUBAPENNINE.

Plaisancian.—Montpellier; Casino (Tuscany).

Astian.—Perrier, near Issoir, Coupet, Vialette (Upper Loire), Chagny; English Crag; part of deposits of the Val d'Arno.

The characteristic of this fauna is the fact that the species belong mostly to existing genera, the chief exception being *Hippotherium.* The horses are chiefly represented by *Equus.* Common genera are *Arctomys*,

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* *Pliohippus* Marsh.

† Report Lieut. G. M. Wheeler, IV, Palæontology of New Mexico, 1874, p. 364.

‡ Bull. Hayden's U. S. Geol. Surv. Terrs. iv, 1878, p. 389.

Lepus, *Elephas*, *Mastodon*, *Tapirus*, *Sus*, *Cervus*, *Antilope*, *Bos*, *Canis*, *Machærodus*, *Felis*, *Ursus*. In the *Equus* beds of Oregon, a few extinct genera in like manner share the field with various recent ones, while not a few of the bones are not distinguishable from those of recent species. I give the following list, the extinct species being in italics:

Mylodon sodalis.
Thomomys (nr.) clusius.
Thomomys talpoides.
Castor fiber.
Lutra near *piscinaria.*
Canis latrans.
Elephas primigenius.
Equus occidentalis.
Equus major.
Auchenia hesterna.
Auchenia magna.
Auchenia vitakeriana.
Cervus fortis.

The species derived from the cave formations of the Eastern States are more numerous, and differ from the Oregon fauna in many respects; yet the parallelism is close in the genera with the *Equus* beds on the one hand and the Pliocene of Europe and South America on the other. The differences distinguishing it from the *Equus* beds of Oregon are, however, such as compel me to regard it as a distinct division of the Pliocene, under the name of the *Megalonyx* beds.

Megatherium (p).
Mylodon (p).
Megalonyx (p).
Sciurus (s).
Arctomys (s).
Jaculus.
Arvicola (s).
Erethizon.
Hydrochœrus (p).
Castoroides.
Lagomys (s).
Lepus (s).
Anomodon.
Scalops.
Arctotherium (p).
Procyon.
Canis (sp).
Mustela (sp).
Machærodus (sp).
Mastodon (sp).
Equus (sp).
? Hippotherium (s).
Tapirus (s).
Dicotyles (p).
Cariacus (p).
Bos (s).

In the above list, the extinct genera are marked in italics. There exists, as a marked feature of the North American Pliocene, to which I called attention several years ago,* a considerable representation of the fauna of the Pampean formation of South America: such are twelve genera, of which six are extinct genera, and four are peculiar to that formation and fauna. The genera found in the Pampean are marked (*p*), and those of the Subapennine (*s*). In the list from the Oregon localities, *Mylodon* and *Auchenia* were observed to be the only distinctively Pampean genera. As a conclusion of the comparison of the American *Equus* beds in general with those of Europe, it may be stated that the number of identical genera is so large that we may not hesitate to parallelize them as stratigraphically the same. On the other hand, the agreement with the South American Pampean formation is so marked in some respects as to induce us to believe that the distinction is geographic rather than stratigraphic. Believing that the Pampean formation contains too large a percentage of extinct genera to be properly regarded, as it has been, as Postpliocene or Quaternary, its characters, both essentially and as a result of the comparison which I have been able to make, refer it properly to the Pliocene.

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* Proc. Acad. Phila. 1857, 156; Proc. Am. Philos. Soc. 1869, 178.

It appears, then, that the term Pliocene or Subapennine is applicable to the horizon of this fauna in Europe and North and South America.

RÉSUMÉ OF COMPARISONS.

The conclusions to be derived from the facts enumerated in the preceding pages are as follows:

I. Portions of all the faunæ of all the primary divisions of geologic time have been recognized on both the European and North American continents.

II. Parallels requiring general identification of principal divisions of these faunæ may be detected. These are: the Coal-Measures; the Permian; the Laramie; the Maestrichtian; the Eocene; the Miocene.

III. Exact identifications of restricted divisions may be made in a few instances only; such are the Turonian and the Niobrara; the Suessonian and the Wasatch; the *Equus beds* and the Pliocene.

It is not impossible that some of the relations mentioned in II will be by the accession of further information, referrible to the list of exact comparisons in III. In all cases of identification it will be necessary to employ the name first proposed with definition, for the horizon, other names taking places as synonymes. But in the majority of strata it will be necessary to preserve the local names: thus those of Judith River, Bridger, White River, and Loup Fork, applying to beds having no exact equivalents in Europe, cannot be set aside for older ones, but must themselves be applied to corresponding faunal horizons elsewhere, should any such be found in future. And it will rarely happen that the minor subdivisions of such faunæ will be found to have an extent sufficient to warrant their having other than local names.

In the accompanying diagram the series of strata of Europe and North America, as determined by their palæontology, are placed side by side for the purpose of comparison. Complete parallelism can only be predicated of divisions of the first order separated by horizontal lines. Such relation is indicated by exact opposition of the areas representing the epochs in question. In giving the minor divisions of the European epochs I have generally restricted myself to those of the epochs which have American equivalents. Where there is no equivalent on one side or the other, the vacancy is represented by a diagonal line. In employing names for epochs and their divisions, I have adhered to the law of priority as far as my knowledge of the literature allows.* I have given a few names to American formations, but only in instances where such had not been previously given. In such cases I have preferred employing the name of some characteristic genus of fossils, rather than one of local origin.

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* In the European system I have been much aided by the atlas of Prof. Renevier of Lausanne, and by the writings of Woodward, Gervais, Hébert, Pomel, Gaudry, Filhol, etc.

WEST EUROPE.			NORTH AMERICA.	
Astian.	Pliocene.	**Tertiary.**	Pliocene.	Equus beds.
Plaisancian.				Megalonyx beds.
Oeningian.	Oeningian.		Loup Fork.	Procamelus beds.
Tortonian.	Falunian.			Ticholeptus beds.
Langhian.				
Aquitanian.	Aquitanian.		White River.	Oregon beds.
Stampian.	Tongrian.			White River.
Sestian.	Parisian.		Uinta.	Uinta.
Bartonian.			Bridger.	Bridger.
Bruxellian.				
Suessonian.	Suessonian.		Wasatch.	Green River.
				Wasatch.
Thanetian.	Thanetian.	**Post-cretaceous.**	? Puerco.	Puerco.
			Laramie.	Fort Union.
				Judith River.
Maestrichtian.	Senonian.	**Cretaceous.**	Fox Hills.	Fox Hills.
Campanian.				Fort Pierre.
Santonian.				
Turonian.	Cenomanian.		Colorado.	Niobrara.
Carentonian.				Fort Benton.
Rhotomagian.			Dakota.	Dakota.
Vraconian.	Gault.			
Albian.				
Aptian.	Urgaptian.			
Rhodanian.				
Urgonian.				
Hauterivian.	Wealden.	**Jurassic.**	Camarasaurus beds.	
Valangian.				
Purbeckian.	Portland.			
Portlandian.				
Kimmeridgian.				
	Corallian.			
	Oxfordian.			
	Bathian.			
	Upper Lias.			
	Lower Lias.			

WEST EUROPE—Continued.			NORTH AMERICA—Continued.	
	Rhaetic.	Trias.		
Karnian.	Keuper.		Keuper.	
Norian.				
	Muschelkalk.			
Thuringian.	Permian.	Carboniferous.	Permian.	Clepsydrops shales.
Lodevian.				Eryops beds.
Coal-Measures.	Coal period.		Coal period.	Coal-Measures.
Conglomerate.				Conglomerate.
Mountain limestone.				Mountain limestone.
Fammenian.	Upper Devonian.		Upper Devonian.	Catskill.
				Chemung.
Eifelian.	Middle Devonian.			Hamilton.
Coblenzian.	Lower Devonian.		Lower Devonian.	Corniferous.
				Oriskany.
Ledburian.	Upper Silurian.	Silurian.	Upper Silurian.	Lower Helderberg.
Ludlovian.				Salina.
Wenlockian.				Niagara.
Llandoverian.	Lower Silurian.		Lower Silurian.	Hudson.
Caradocian.				
Llandeilian.				Trenton.
Tremadocian.				
	Primordial.		Primordial.	Calciferous.
				Potsdam.
		Archæan.		

The oldest of these I have called the *Eryops* beds, from the most abundant genus of Labyrinthodonts which is found in it. They contain, also, abundance of other *Vertebrata*, none of which are higher than *Reptilia* (order *Theromorpha*), with plants, mollusks, etc. They consist of sandstones, alternating with beds of red clay and coarse conglomerate and sphærosiderite, etc. They are chiefly distributed in Northern Texas and Southern Indian Territory.

The *Clepsydrops* shale, named by me in 1865, forms a thin stratum, in Southeast Illinois and Southwest Indiana, consisting of black and rarely reddish carbonaceous shales and clays. These appear in some places to lie conformably on the Coal-Measures, to which they have been referred by previous geologists, but Collett, Gibson, and others have shown that it is unconformable over considerable areas. It does not belong to the Coal-Measures.

The Puerco marls were first observed by me in New Mexico in 1874, and afterwards found to have an extensive development in Southwestern Colorado, by Endlich, in 1875. He has referred them to the lowest place in the Tertiary series, but the absence of fossils renders it difficult to conclude whether they belong here or in the Laramie series.

The Oregon White River beds differ from those found east of the Rocky Mountains, although they contain a majority of the same genera, and many of the same species. They are wanting in the important genera *Symborodon* and *Menodus*. To represent these genera, they have *Dæodon*, and, in addition, some peculiar genera of *Rodentia*, as *Entoptychus*, *Pleurolicus*, and *Meniscomys*, and the Suilline *Palæochœrus*. Among Carnivora, the genus *Enhydrocyon* is, so far as known, characteristic of them.

The Loup Fork beds are represented in the valley of Smith's River, Montana, by a horizon which may be somewhat older than that heretofore known. The fauna presents us with the typical genera *Procamelus*, *Hippotherium*, *Protohippus*, *Mastodon*, and *Merycochœrus*, but, in addition, with the peculiar genera of *Oreodontidæ*, *Ticholeptus*, *Cyclopidius*, and *Pithecistes*,* and with Ruminants similar to *Palæomeryx*. These are wanting from the other parts of the formation, and I therefore name the two divisions the *Ticholeptus* and the *Procamelus* beds.

I have already mentioned the *Megalonyx* beds as the equivalents in the east of North America of the *Equus* beds of Oregon and California, but which present such important differences that they cannot be identified. The differences are displayed in the catalogues already given, the list of the *Megalonyx* fauna having been derived from the exploration of caves in Pennsylvania†, Virginia, and Illinois. The remains of this fauna are by no means found in caves only, but are found in swamps and Pliocene clays. The extinct genera characteristic of the *Megalonyx* beds are *Megatherium*, *Megalonyx*, *Castoroides*, and *Arctotherium;* the genera no longer living in North America, *Hydrochœrus*, *Tapirus*.

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* Proc. Am. Philos. Soc. 1877, p. 219.

† Loc. cit. 1871, p. 73.

In conclusion, it may be observed that the lacunæ in the series as presented by one continent render us dependent on the other for the evidence necessary for the complete elucidation of the laws of the creation of animal life. Phylogenies can be thus constructed which would otherwise be impossible, and the results of researches into the earliest types of *Vertebrata* become intelligible. Thus I have been able to prove, in support of a thesis published in 1874, that the earliest Ungulate *Mammalia* were pentadactyle and plantigrade. I have also shown that the ankle-joint had not, in the primitive *Mammalia*, the hinge-like character that it has in the later ones, but that it is without the interlocking superior articulation. The small size of the brain of early *Mammalia*, already pointed out by Lartet, has received extensive confirmation by the researches of Marsh, who has also shown the progressive increase in size of the whole body in various Mammalian lines. To these results I now add another, which is derived from the study of numerous Permian *Vertebrata*, viz, that the earliest land vertebrates had a persistent chorda dorsalis.

COMPARISON WITH THE SCALE DERIVED FROM PALÆOBOTANY.

I now consider another kind of relation presented by the American and European horizons. I allude to the floræ, for my knowledge of which I am necessarily dependent on the labors of others. I first exhibit the determinations of the ages of the American formations already discussed, made by Mr. Lesquereux on the basis of the vegetable remains which they contain. I place by the side of these my own determinations of the ages of the same beds, as already related. The former are derived from the full memoir of Mr. Lesquereux in the Annual Report of the United States Geological Survey of the Territories for 1872, pp. 410–417. It will be observed that there is a constant discrepancy between the two tables.

Lesquereux.	Formation.	Cope.
....	Loup Fork	Miocene.
....	White River	Oligocene.
Upper Miocene	Bridger	Middle Eocene.
Miocene..................	Wasatch .... Green River	Lower Eocene.
Lower Eocene	Laramie	Upper Cretaceous.

If the determinations of Mr. Lesquereux be correct,* it is evident from the above that the vegetable life of North America reached its present condition one epoch or period earlier than the higher *Vertebrata*, and that the nomenclature is thus thrown back by so much. It would appear that the recent flora of North America is a period older than the

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*The above parallels are well presented by Dr. Peale in his report to Dr. Hayden, Ann. Rept. U. S. Geol. Surv. Terrs. 1874, p. 141 *et seq.*

fauna, *i. e.*, has persisted longer than the latter by a certain length of geologic time. Applying the same reasoning to the past, I embodied the idea in reference to the Laramie period ("Fort Union") in the statement that "a cretaceous fauna was then contemporary with a tertiary flora"; and, later, that "an eocene fauna was contemporary with a miocene flora." It may have to be added that a miocene fauna was contemporary with a pliocene flora. Since Mr. Lesquereux has the support of the best palæobotanists of Europe, in his conclusions, it is useless to take the ground assumed by a few of my colleagues, that the former gentleman has simply erred in his determinations. He gives us grounds for believing that he has not done so, by giving us the European standard by which his identifications are governed.* It is as follows:

Pliocene	Lower limits not positively fixed; largely developed in Italy. ? (Subapennine, E.D.C.)
Miocene	Oeningian; Mayencian; Aquitanian.
Oligocene	Tongrian.
Eocene	Gypse of Aix; Alum Bay; Mt. Bolca; London Clay; Sheppey; Grès of the Sarthe.
Paleocene	Upper Landenian; Sezanne (=Paniselian). Suessonian (Lignitic Soissonais; Sables de Bracheux); Lower Landenian. Hersian; Gelinden. Limestone of Mons, overlying unconformably the Maestrichtian.

This system, it will be observed, is almost exactly identical with that employed in the preceding pages as the standard of comparison for the *Vertebrata.* Yet it has resulted, from a most careful comparison of both faunæ and floræ of America with this standard scale, that two distinct palæontological series have to be adopted, the one for the vertebrate life and the other for the plants of the Western Continent. If this result be accurate, and there appears to be no avoiding it, an explanation must be sought. There are only two possible ones: either the animal life of North America has lagged behind that of Europe by one period during past geologic time; or, secondly, the vegetable life of America has been equally in advance of that of Europe during the same period. In other words, if the plant-life of the continents was contemporaneous, ancient types of animals remained a period longer in North America than in Europe. If animal life was contemporaneous, plant-life had advanced by one period in Europe beyond that which it had attained in North America. In either case, the faunal or the floral standard of estimation of geologic age of strata for North America is a false one, since there can be but one standard of comparison for anything. But this great fact being understood, the evidence of each of the great departments of life possesses its own intrinsic value.

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*Ann. Report U. S. Geol. Surv. Terrs. 1874, p. 285.

Art. III.—Observations on the Faunæ of the Miocene Tertiaries of Oregon.

By E. D. Cope.

A considerable number of *Vertebrata*, almost exclusively *Mammalia*, have been described by authors from the White River and Pliocene formations of Oregon. The descriptions are found in Professor Leidy's contribution to the Final Report of the United States Geological Survey under Dr. Hayden (Vol. I); in those of Professor Marsh in the American Journal of Science; in a paper by Mr. Bettany in the Quarterly Journal of the Geological Society of London for 1876; and in a paper by myself (Paleontological Bulletin No. 30) in the Proceedings of the American Philosophical Society, published in December, 1878.* Having recently had the opportunity of inspecting a considerable amount of material from the horizons in question, I give a list of the species which I have observed. A few new ones occur in collections received since the publication of my last paper, and are now described, together with some of interest from the Loup Fork beds of the same region.

White River Fauna.

TESTUDINATA.

STYLEMYS OREGONENSIS Leidy.

RODENTIA.

STENEOFIBER GRADATUS Cope.
STENEOFIBER ? NEBRASCENSIS Leidy.
MENISCOMYS HIPPODUS Cope.
MENISCOMYS MULTIPLICATUS Cope.
PLEUROLICUS SULCIFRONS Cope.
ENTOPTYCHUS CAVIFRONS Cope.
ENTOPTYCHUS PLANIFRONS Cope.
ENTOPTYCHUS CRASSIRAMIS Cope.
PALÆOLAGUS HAYDENI Leidy.

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* See also the American Naturalist, December, 1878.

CARNIVORA.

HOPLOPHONEUS BRACHYOPS Cope.

MACHÆRODUS STRIGIDENS Cope.

ENHYDROCYON STENOCEPHALUS, gen. et sp. nov.

Generic Characters.—Dental formula: I. ?; C. $\frac{1}{1}$; Pm. $\frac{3}{3}$; M. $\frac{2}{?}$. The superior premolars consist of two ordinary and one sectorial; the first and second are both compressed, two-rooted, and in the typical species with median lobe of posterior cutting edge. The two true molars are transverse and tubercular. The three inferior premolars are all two-rooted, and with posterior lobe in the two known species. The heel of the sectorial is cutting, as in *Temnocyon*, and the internal tubercle is present. There is at least one inferior tubercular tooth; specimens are injured so as not to display a second.

In a nearly complete cranium belonging to the typical species of this genus, we observe the shortness of the facial part of the skull as compared with the length of the cerebral, and also the constriction of the skull behind the orbits. The zygomatic arches are robust and expanded, and the sagittal crest is high. The auditory bullæ are inflated and thin-walled.

The dentition of this genus refers it to the *Canidæ*, but the form of the skull resembles that of *Putorius vison* and *Lutra*.

Specific Characters.—The principal cusps of the inferior premolars present cutting edges, as does the median posterior lobe. In both third and fourth there is a small conic heel posteriorly, but an anterior basal tubercle on the fourth only. The sectorial is large and robust, and the heel is short, with an absolutely median cutting edge. The first tubercular is longer than wide, and presents a nearly median cusp in front, which is joined to a low one on the internal border of the crown.

The superior canine has an obtuse cutting edge on the anterior and posterior borders of the inner side. The first (third) superior premolar is near to it, and is rather large, displaying a median cutting lobe and low posterior heel. The fourth is similar but larger. The sectorial is much worn in the only specimen where it is preserved; it is rather short, and is widened anteriorly. The first tubercular is large, and has considerable transverse extent; it is a little wider externally than internally, and has much the form of the corresponding tooth in *Canis*. The second tubercular is transverse and small, not being much more than half the length of the first, and is situated in contact with it.

The cranium is remarkable for the anterior position of the orbits, and the associated shortening of the face and lengthening of the parietal region. The orbits look somewhat forwards and very little upwards. The superciliary region is slightly prominent, and there is a prelachrymal concavity. The infraorbital foramen is moderate, and is situated mostly above the posterior part of the fourth premolar. The muzzle is flat above, and the nasal bones are wide, and are not emarginate above the osseous nares, as in many recent *Carnivora*. Posteriorly, the superior border of the brain-case descends, but the parietal bones maintain a gently convex outline in their high sagittal crest. The supraoccipital region is elevated, and projects posteriorly.

Measurements.

Specimen No. 1.

		M.
Antero-posterior diameter of second superior premolar		0.010
Antero-posterior diameter of third inferior premolar		0.013
Width of base of third inferior premolar		0.0065
Elevation of crown of third inferior premolar		0.010
Diameter of inferior sectorial	transverse	0.010
	antero-posterior	0.021
Width of first tubercular		0.006

Specimen No. 2.

Total length of cranium	0.170
Width across zygomatic arches	0.114
Least width behind orbits	0.024
Depth of cranium with crest at otic bulla	0.070
Vertical diameter of orbit	0.025
Length from orbit to end of muzzle (axial)	0.040
Interorbital width	0.043
Width of muzzle above second premolar	0.018
Length of superior molar series	0.051
Length of fourth premolar	0.012
Length of sectorial	0.016
Length of first tubercular	0.008
Width of first tubercular	0.015
Width of second tubercular	0.0085

The length of the skull is about that of the Coyote, but it is much more robust in all its proportions excepting the postorbital constriction.

Discovered by Charles H. Sternberg in the Oregon White River beds of the John Day River region.

ENHYDROCYON BASILATUS, sp. nov.

This Carnivore is represented by a mandible with coössified rami, which are broken off behind the sectorial teeth. The crowns of the latter and but one incisor and one canine tooth remain. The premolars and one canine are in good preservation.

These portions indicate an animal of the same general character as the *Enhydrocyon stenocephalus*, but of larger and more robust proportions, and characterized by many dental peculiarities. These will be at once pointed out. The canine is directed upwards and a little outwards, and possesses two obtuse ridges bounding the interior face. The third incisor is compressed and truncate superiorly and distally. The first (second) premolar is two-rooted, compressed, and trilobate. It consists of a principal cutting edge little elevated, and a small accessory lobe at each extremity of the crown; its base is expanded posteriorly. The principal cusp of the third premolar is more elevated, and, besides the anterior and posterior tubercles, there is a basal posterior heel, which is continued as an expansion of the inner base of the crown. In the fourth premolar, the base of the crown is expanded, especially posteriorly; the principal cusp has a nearly circular section at the base, and the posterior median lobe is a subconic tubercle standing on the middle of the heel. The sectorial is large and relatively rather narrow, but the details of its form are not ascertainable.

Measurements.

	M.
Length of dental series, including canine and sectorial	0.076
Length of the base of the sectorial	0.024
Length of the premolar series	0.037
Length of the fourth premolar	0.016
Width of the fourth premolar	0.009
Length of the third premolar	0.013
Width of the third premolar	0.008
Length of the second premolar	0.009
Width between centres of crowns of fourth premolars	0.034
Length of symphysis	0.035

This species was probably of the dimensions of the Gray Wolf. Found by Mr. Sternberg in the same region as the *E. stenocephalus*.

TEMNOCYON ALTIGENIS Cope.

CANIS HARTSHORNIANUS Cope

CANIS GEISMARIANUS Cope.

CANIS CUSPIGERUS Cope.

CANIS LIPPINCOTTIANUS Cope.

CANIS GREGARIUS Cope.

PERISSODACTYLA.

DÆODON SHOSHONENSIS Cope.

ACERATHERIUM PACIFICUM Leidy.

ANCHITHERIUM EQUICEPS Cope.

ANCHITHERIUM BRACHYLOPHUM Cope.

ANCHITHERIUM LONGICRISTE Cope.

ARTIODACTYLA.

ELOTHERIUM IMPERATOR Leidy.

PALÆOCHŒRUS CONDONI Marsh.

PALÆOCHŒRUS PRISTINUS Leidy.

PALÆOCHŒRUS SOCIALIS Marsh.

MERYCOPATER GUYOTIANUS Cope.

EUCROTAPHUS SUPERBUS Leidy.

EUCROTAPHUS OCCIDENTALIS Marsh.

MERYCOCHŒRUS LEIDYI Bettany.

MERYCOCHŒRUS TEMPORALIS Bettany.

POËBROTHERIUM STERNBERGII, sp. nov.

This Ruminant is represented by a considerable part of the skeleton with both mandibular rami supporting the teeth, of one individual. The bones are all in close proximity, and sometimes in undisturbed relation, in a single block of stone.

The species to which I give the above name presents the characters already ascribed to the genus *Poëbrotherium* by Leidy as regards cranial features, and by myself as regards the rest of the skeleton. The third and fourth metacarpals are not coössified, and the second and fifth are not distinguishable. The preservation of the premaxillary bone in this species enables me to demonstrate the presence of superior incisor teeth, a character the presence of which I have heretofore only inferred. As compared with the *P. vilsoni*, the species differs in its superior size and greater relative robustness. This is seen in the greater depth of the mandibular ramus, and the greater stoutness of the metapodial and other limb-bones. The last inferior molar tooth presents a characteristic peculiarity. The anterior external cusp is separated by a deep groove which divides the external side of the crown to the base from the succeeding cusp. It results that on trituration, the anterior external crescent is isolated, and does not communicate by its posterior horn with the succeeding crescent, as in *P. vilsoni*. The last premolar is more robust than that of the *P. vilsoni*, the width of the half-worn surface being half the length of the tooth and enclosing behind an enamel fossa. In *P. vilsoni*, this tooth is more compressed, and the fossa is represented by an open groove. The first inferior premolar occupies the middle of the diastema following the canine, instead of standing near the canine as in *P. vilsoni*.

Measurements.

		M.
Diameter of last molar	antero-posterior	0.020
	transverse	0.009
Diameter of penultimate molar	antero-posterior	0.013
	transverse	0.009
Depth of ramus at second molar		0.025
Length of ramus from third molar to extreme posterior edge		0.061
Length of metacarpus		0.178
Transverse proximal diameter of the two metacarpi		0.029
Greatest diameter of the head of the humerus		0.053
Antero-posterior diameter of the condyle of the femur		0.048

This species is named in honor of Charles H. Sternberg, the indefatigable explorer of the fossil deposits of the West.

BOÖCHŒRUS HUMEROSUS, gen. et sp. nov.

Generic Characters.—The species on which this genus is founded, is represented by a part of the skeleton, which is unfortunately not accompanied by cranial bones or teeth. The characters are, however, sufficiently clear for purposes of determination. The great tuberosity of the humerus is produced beyond the head, and does not close round the bicipital groove. The intertrochlear ridge is well developed, and there is no internal epicondyle; the external epicondyle is moderately developed. On the carpal extremity of the ulno-radius, the facets of the scaphoid, lunar, and cuneiform bones, are distinguished by strong oblique ridges, and the last named is nearly in the horizontal line of the two others. In the carpus, the trapezoides is distinct, and the trapezium wanting. The unciform is in contact with the lunar. Metacarpals two, distinct from each other, with free rudiments of the second and fifth at their proximal extremities. Their distal keels confined to the posterior faces of their extremities. Phalanges depressed; ungues short, obtuse.

In the above description is found a combination of characters not known to me to exist in any recent or extinct genus of *Artiodactyla*. Several of its features indicate affinity to the suilline division, while others point to the *Ruminantia*. The imperfect distal articulation of the metacarpals is characteristic of the extinct types *Oreodontidæ* and *Poëbrotheriidæ*, and the two distinct metacarpals constitute the resemblance to the latter family the stronger. The latter character is, however, not inconsistent with the *Omnivora*, and the depressed phalanges add to the weight of affinity in this direction. The distal extremity of the humerus is much like that of a peccary. The distal articular surface of the ulno-radius points, however, again to the *Ruminantia* of the group *Pecora*, displaying a specialization quite in contrast with the primitive character of the metacarpo-phalangeal articulation. From these considerations it can be seen that it is not easy to affirm whether this genus possesses bunodont or selenodont dentition. If I may venture an inference as to the affinities of the genus, I would suggest that it will be found to be as nearly allied to the *Hypertragulidæ* as to the *Oreodontidæ*, though not without suilline affinities.

Specific Characters.—The only species of this genus known to me is of large size. It is represented by the greater part of a scapula and both anterior limbs and feet; by the pelvis, femur, and part of tibia, and by some vertebræ; all found in immediate association by Mr. Sternberg. These remains indicate an animal of the size of the *Rhinocerus indicus*. The animal is characterized by the massive proportions of the humerus as compared with the femur, and by the short, robust form of the metacarpals.

In the *humerus*, the external border of the great tuberosity is entire, and is not reverted, but descends backwards like the remainder of the surface. The apex of the great tuberosity is much recurved, rising steeply proximad of the head. The bicipital groove is deep. The lesser trochanter is large and simply conic; its transverse extent is not great. External to its base is a small tuberosity, which is represented in *Bos*, but not in *Dicotyles* or *Sus*. The deltoid crest is very prominent, descending to the middle of the length of the humerus, before abruptly sinking to the shaft. Its continuation is very prominent as it crosses the axis of the shaft and becomes the anterior bounding ridge of the internal side of the distal extremity. The section of the shaft is thus subtriangular at all points, the obtuse apex of the triangles revolving from the external side proximally, to the internal distally. The external epicondyle is proximal to the condyle, as in *Dicotyles*, but is more prominent than in that genus, and more as in *Oreodon*. It is the extremity of the external acute edge of the humerus, which, rising from the shaft at a point 90° posterior to the extremity of the deltoid ridge, turns forwards to the external epicondyle. The condyles are transverse and not much contracted from side to side. The intertrochlear ridge is sharper than in the species of *Oreodon*, *Dicotyles*, or *Sus*, and is continued round to the shaft anteriorly, as in *Bos*. The condyles otherwise resemble those of *Dicotyles*, not being so contracted in their free margins as in *Bos*.

Measurements of the Humerus.

		M.
Total length		0.500
Length from middle of head		0.425
Diameter of proximal end	antero-posterior	0.140
	transverse	0.170
Diameter of head	antero-posterior	0.100
	transverse	0.100
Width of humerus near extremity of deltoid crest		0.130
Diameter of shaft just below extremity of deltoid crest	antero-posterior	0.078
	transverse	0.065
Width at epicondyle		0.130
Transverse diameter of condyles		0.120
Antero-posterior diameter of condyles	internally	0.070
	at constriction	0.055
	externally	0.050

This bone has about the size of the corresponding one of the *Rhinocerus indicus*.

The carpal extremity of the *ulno-radius* is extended transversely. The cuneiform or ulnar articular face forms posteriorly two-fifths the entire extremity, and is only recurved in the external part of its posterior border, which is very concave. The ridge which separates it from the lunar surface is very oblique, following just outside of the ulno-radial suture, and contracting the cuneiform facet anteriorly. Distally and posteriorly it forms the external border of the posteriorly reverted lunar facet, bounding a deep fossa, which is posterior to the cuneiform facet on its inner side. The lunar facet widens behind at the expense of the scaphoid, so that the scapho-lunar ridge is even more oblique than the luno-cuneiform. This ridge disappears supero-anteriorly, and the lunar facet is recurved upwards, occupying the distal extremity of a strong median ridge of the ulno-radius. The reverted portion is almost a half circle in outline, and is partly continuous with the scaphoid facet. The latter is subtriangular in outline, its apex being the point of conjunction of the scapho-lunar ridge with the internal border, just posterior to its greatest convexity. Its superior boundary is interrupted by the wide groove which separates the median ridge from the internal border of the distal part of the radius.

Measurements of the Ulno-radius.

		M.
Transverse diameter, total		0.110
Transverse diameter of ulna		0.050
Antero-posterior diameter of articular face	externally	0.035
	at middle of ulna	0.021
	at luno-cuneiform ridge	0.055
	internally	0.045

But for the extent and transverse position of the ulnar portion of this articular face, it might be regarded as pertaining to a typical Ruminant.

The length of the *carpus* is about three-fourths its width, the proximal elements being larger than the distal. A feature of its anterior face is the close approximation of the inferior angle of the lunar to the superior angle of the third metacarpus, which allows the magnum and unciform a very slight contact. The external face of the scaphoid is chiefly lateral; its posterior border is a vertical, short tuberosity. The proximal face is abruptly decurved at the anterior outer angle, to meet the lunar. There are two separate oval superior lunar facets, and one narrow anterior inferior one. The inferior face is nearly equally divided by a low cross ridge which fits a concavity of the posterior part of the magnum. The lunar is the largest bone of the carpus. Its proximal face is decurved anteriorly, posteriorly, and on each side, and is twice as long as wide at the middle. The postero-internal and antero-external angles are produced, the latter into a compressed process which articulates with the adjacent angle of the cuneiform. Besides this facet there is one other for the cuneiform, which occupies the posterior half of the inferior part of the outer side, and is separated from the superior edge by a deep groove. The unciform facet is in front nearly as wide as that of the magnum, but grows gradually narrower posteriorly. The facet for the magnum is concave, and grows very wide posteriorly, with the posterior internal angle produced downwards. The proximal facet of the cuneiform is very concave, the anterior and posterior borders being elevated, and the internal and external decurved; the latter prolonged a little backwards. Below this extremity on the external aspect is a fossa. The pisiform facet makes an angle of 90° with the ulnar, and extends behind and along the posterior edge of the latter to its apex. The unciform facet is simple, and is in shape a right-angled triangle with convex hypothenuse. The posterior aspect of this bone is concave.

The proximal face of the trapezoides is longer than wide, convex antero-posteriorly, and subdiamond-shaped. The inferior face is narrow subdiamond-shaped, and has less than half the area of the proximal. There is a small round tuberosity on the posterior border, and no trace of facet for a trapezium. The anterior face of the magnum is wider than long, and is divided into three planes. The proximal extremity is divided into two areas by a high antero-posterior keel. The inner area is the larger, and is bounded by the entire superior border of the anterior face of the bone. The outer area, or the lunar facet, extends very obliquely downwards, most so in front, where it forms the external side of the magnum. It is interrupted by a large sinus, which leaves the posterior portion of the face narrow and transverse. Behind it is first a fossa and then two short tuberosities, one above and external to the other. The inferior face is undivided, and is concave antero-posteriorly, and convex transversely. The unciform is the second bone of the carpus in size. Its anterior face is broader than long, and is convex transversely. The inner face has in front a large trapezoidal facet for the third metacarpus, which is only separated from that of the lunar by the angle. The superior face is divided, by an angular ridge nearly parallel with the inner border, into two unequal faces for the lunar and cuneiform. The latter is half as wide posteriorly as long, and terminates anteriorly in an obtuse angle. The distal face is undivided, but is recurved postero-externally, apparently offering a narrow facet for the fifth metacarpus. This face nearly meets the cuneiform face posteriorly. Behind both the unciform is produced into a decurved, subconic tuberosity.

*Measurements of the Carpus.**

			M.
Diameter of scaphoid	antero-posterior		0.066
	longitudinal		0.048
Diameter of proximal face of scaphoid	antero-posterior		0.048
	transverse		0.030
Diameter of distal face of scaphoid	antero-posterior		0.048
	transverse		0.023
Diameter of proximal face of lunar	transverse	anteriorly	0.047
		at middle	0.032
	longitudinal		0.053
Diameter of anterior face of lunar	longitudinal		0.048
	transverse		0.032
Diameter of cuneiform	antero-posterior, oblique		0.059
	transverse, behind		0.040
Diameter of proximal face of cuneiform	antero-posterior		0.040
	transverse		0.044
Diameter of distal face of cuneiform	antero-posterior		0.040
	transverse		0.031
Length of trapezoides			0.027
Diameter of proximal face of trapezoides	antero-posterior		0.029
	transverse		0.016
Diameter of distal end of trapezoides	antero-posterior		0.020
	transverse		0.010
Diameter of magnum	longitudinal	anteriorly	0.029
		externally	0.040
	transverse, posteriorly		0.047
	antero-posteriorly, outer side		0.055

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* These measurements are always the greatest, and are axial, or in straight lines.

Measurements of the Carpus—Continued.

		M.
Diameter of lunar face of magnum	antero-posteriorly	0.046
	transversely	0.031
Diameter of distal face of magnum	antero-posteriorly	0.040
	transversely	0.048
Diameter of unciform	antero-posterior	0.080
	transverse	0.053
	longitudinal, in front	0.040
Diameter of lunar facet	antero-posterior	0.047
	transverse (least)	0.016
Diameter of cuneiform facet	antero-posterior	0.052
	transverse (behind)	0.028
Diameter of 4th metacarpal facet	antero-posterior	0.044
	transverse	0.046

As already remarked, this carpus displays resemblances to some recent types, and possesses some which are not known among living *Artiodactyla*. The inferior face of the scaphoid is narrower from side to side than in the *Ruminantia* or *Sus*, *Dicotyles* only approaching but not equalling it in this respect. The strong inferior keel of the lunar exceeds that seen in any of the *Ruminantia* or *Omnivora*. The pisiform facet is more oblique than in those groups. The posterior tuberosities of the magnum and unciform are larger than those of the genera of either group, while the distinct trapezoides, the slightly shortened magnum and unciform, and slight decurvature of the cuneiform facet of the unciform posteriorly, are suilline characters.

The *metacarpals* are robust, but flattened antero-posteriorly. The rudiments of the second and fifth are free, and the latter is the larger. The third has a considerable surface of contact with the unciform; its anterior face displays two shallow fossæ, one at each superior angle. The corresponding positions on the fourth metacarpal are occupied by two low bosses. Otherwise the surfaces of the shafts of these bones are uniform. The phalangeal articular face is well reverted anteriorly and posteriorly, and is not bounded by a transverse depression anteriorly above. The carina is short, though prominent, and extends to the middle of the distal extremity. The lateral distal tuberosities are very low.

Measurements of the Metacarpals.

		M.
Length of M. III		0.210
Length of M. IV		0.190
Diameter of M. III proximally	transverse (total)	0.063
	antero-posterior	0.055
Diameter of M. III distally	transverse	0.053
	antero-posterior (chord)	0.045
Diameter of M. IV proximally	transverse	0.054
	antero-posterior	0.045
Diameter of M. IV distally	transverse	0.043
	antero-posterior (chord)	0.048
Length of M. II		0.035
Length of M. V		0.040
Diameter of M. V antero-posteriorly		0.021

The *phalanges* are more depressed than in any genus of *Artiodactyla* known to me, excepting *Hippopotamus*. The proximal articular surface of the first is gently concave, with the anterior border not produced. The shaft is not contracted, and is regularly convex above or anteriorly. The distal articular face is narrower above and not produced. The superior border of the proximal face of the second phalange is produced medially. The distal face is narrowed and produced upwards, so as to stand in high relief, from which it results that the middle of the shaft is very concave above. The external and internal borders of the inferior or posterior part of the distal face, are produced backwards, covering lateral basal ridges of more than half the length of the shaft, which form the inferior border of lateral fossæ. One unguis is preserved. It is distinct in form from that of *Hippopotamus*, *Sus*, or *Dicotyles*, and resembles that of the llama. It is short, obtuse, and compressed. The external face is nearly plane fore and aft, and slightly convex vertically. The inner is convex fore and aft, and concave vertically. The profile descends steeply to the apex, the curve commencing but little beyond the base. The inferior face is at right angles to the interior face, and is moderately wide.

Measurements of the Phalanges.

		M.
Median length of first of M. IV		0.066
Proximal diameter	antero-posterior	0.042
	transverse	0.055
Distal diameter	antero-posterior (median)	0.030
	transverse (greatest)	0.055
Median length of second phalange		0.055
Diameter of second phalange proximally	antero-posterior	0.035
	transverse	0.045
Diameter of second phalange distally	antero-posterior	0.032
	transverse	0.041
Length of ungual phalange below		0.042
Proximal diameter of ungual phalange	antero-posterior	0.032
	transverse	0.025

The *femur* is slender as compared with the humerus, and of moderate length. The great trochanter is produced, but not beyond the line of the convexity of the head, and is not much recurved. The expanse externally is about as great as that of the head internally. The trochanteric fossa is not large, and is cut off below by a plane surface at the base of the great trochanter, whose superior border forms a curved line connecting the great and little trochanters. The latter is large and projects well inwards. The *fossa ligamenti teris* is large and central, having no connection with the border of the head of the femur. The posterior side of the shaft is flat, and the anterior face regularly convex. The two faces meet externally in a well-marked representative of the *linea aspera*. The rotular face of the femur is short and wide, with the borders somewhat oblique, and the inner edge is higher than the outer at its proximal part. It is strongly convex from above downwards, and does not connect below with the condylar surfaces. Its entire inferior border is well defined and angulate. The condyles are well separated, and the intercondylar fossa is wide above or anteriorly. The external is a little the larger, and the internal is distinguished by the presence of a deep lateral fossa.

The head of the *tibia* is characterized by a distinct bifid spine, and a low, wide crest, which presents an open, shallow groove forwards. The articular faces are of subequal width, but the external is shortened anteriorly by the usual notch; it is also decurved posteriorly.

Measurements of the Femur.

		M.
Expanse proximally (greatest)		0.170
Expanse proximally at extremity		0.150
Diameter of head		0.068
Diameter of shaft at middle	antero-posteriorly	0.053
	transversely	0.030
Length of chord of rotular face		0.088
Width of rotular face		0.070
Expanse of condyles (greatest)		0.122
Greatest chord of distal end of femur		0.110

Measurements of the Tibia.

		M.
Diameter of head of tibia	antero-posterior	0.130
	transverse	0.125

The form of the head of the tibia is much like the corresponding region in *Oreodon culbertsoni;* but the characters of the femur do not resemble those of that species, particularly as regards the distal extremity.

A peculiarity of the long bones of this species is seen in their very large medullary cavities. This is especially true of the humerus, whose walls are remarkably thin; those of the femur are thicker.

This species was found by Mr. C. H. Sternberg in the John Day River region.

LEPTOMERYX EVANSI Leidy.

HYPERTRAGULUS CALCARATUS Cope.

This species is much more abundant in the John Day River deposit than the *Leptomeryx evansi.* The two genera represent a peculiar family, which I call the *Hypertragulidæ*, with the following characters:

Selenodont *Ruminantia* with an interrupted dental series, coössified ulna and radius, cuboid and navicular bones, and third and fourth metapodial bones. Only two continuous metapodial bones, their distal articular extremities not presenting a complete trochlear keel. No fibula. Premolars except the fourth, cutting.

This family connects the *Tragulidæ* with more typical *Ruminantia.* It differs from that family in the absence of the fibula and the external metapodial bones. From the typical *Ruminantia* or *Pecora*, it differs in the incompleteness of the trochlear keel of the metapodials, and the trenchant character of the premolars, excepting the last.

The species of the preceding list which I have observed in other localities are the following, which I procured in the White River beds of Eastern Colorado: *Palæolagus haydeni*, *Canis hartshornianus*, *Canis lippincottianus*, *Canis gregarius*, *Leptomeryx evansi*, *Hypertragulus calcaratus*. Professor Leidy has recognized a number of species as those previously found in the White River beds of Dakota by Dr. Hayden.

Loup Fork Fauna.

Two new species were obtained by Mr. Sternberg at this horizon, which present characters of considerable interest. They are as follows:

LUTRICTIS? LYCOPOTAMICUS, sp. nov.

This Carnivore is represented by a left mandibular ramus, which contains alveoli and crowns of the canine and molars, excepting those posterior to the sectorial. These teeth have the formula, four premolars, of *Mustela* and of the Dogs, but the sectorial is much more like that of *Lutra* than that of either of the genera named. The heel of this tooth is long, and encloses a wide space transversely, while the sectorial portion is short and low, and includes a large internal tubercle. In the absence of the tubercular teeth, the generic reference is uncertain; but its characters agreeing, so far as they go, with the genus *Lutrictis* of Pomel, I refer it there provisionally.

The first premolar only is one-rooted; the third is wide behind, developing a low heel. The heel of the fourth is a little better developed, and there is a small anterior basal cutting lobe; there is also a tubercle on the posterior cutting edge at the middle. The three cusps of the anterior part of the sectorial tooth are situated at the corners of an imaginary equilateral triangle. The heel continues the width of the crown, is wider than long, and is abruptly truncate behind. It supports a long cutting edge just within the external border, and a shorter one on the internal. The surface of the enamel is smooth. There are two mental foramina, one below the interval between the first and second premolars, the other beneath the anterior root of the third premolar.

Measurements.

		M.
Length of molar series without tubercular		0.0220
Diameter of sectorial	antero-posterior	0.0066
	transverse	0.0040
Length of heel of sectorial		0.0024
Length of fourth premolar		0.0045
Elevation of fourth premolar		0.0036

From the Loup Fork formation of Cottonwood Creek, Oregon; discovered by Charles H. Sternberg.

PROTOLABIS TRANSMONTANUS, sp. nov.

A nearly complete cranium, without lower jaw, of an adult animal, is the basis of our knowledge of this species. It presents the characters of the genus in the following superior dental formula: I. 3; C. 1; P.m. 4; M. 3. The first premolar is situated in the middle of a long diastema, and a short one separates the canine from the third incisor.

On comparison of this species with the *P. heterodontus*, the type, and heretofore the only known species of the genus, various characteristic peculiarities may be observed, which will be noticed in the course of the description. It is considerably smaller than the *P. heterodontus*, resembling in its dimensions the *Procamelus occidentalis.*

The crown of the second superior incisor is directed forwards, and the cutting edge is oblique to the long axis of the tooth. The first incisor is equally large, and its alveolus occupies the apex of the premaxillary bone. In *P. heterodontus*, the alveolus is smaller, and the apex extends considerably beyond it. The third incisor has a conic crown, with subround section. In *P. heterodontus* it is more robust, and is oval in section, with weak posterior cutting edge. The canine is less robust than the third incisor, and is about as far posterior to it as the latter is from the second incisor. The crown is slightly compressed, and is less robust than that of *P. heterodontus.* The first premolar is still weaker, and the crown is compressed; the roots are only discrete at their extremities. It is situated a little more than one-third the distance between the canine and second premolar behind the former. The second premolar is well developed, and is two-rooted. The third premolar is also large, with the grinding surface of the crown about half as wide as long. It has a strong internal basal cingulum, which on attrition encloses a groove-like fossa with the principal crown. The external face of the crown is gently convex between an anterior and a posterior ridge. The internal face of the crown is uniformly convex. The fourth premolar has both crescents well developed. Its grinding face is subsemicircular, and there are a strong anterior and a weak posterior external vertical ridge. In *P. heterodontus*, the grinding surface of this tooth is more nearly subquadrate.

The true molars are subquadrate in horizontal section, and have short crowns, well distinguished from the roots. The anterior horn of each external crescent is prolonged, constituting a section of a prominent vertical external ridge of the crown at each point. The external sides of the columns are but slightly convex. The inner sides of the internal columns are strongly convex. The enamel borders of the lakes are absolutely simple, and there are no included enamel fossæ. The posterior outer angle of the last superior molar is not produced.

As compared with the true molars of *P. transmontanus*, those of the *P. heterodontus* are relatively smaller in transverse diameter. The masticating surfaces of the crowns of the second and third are thus more elongate in outline. They are also rather more prismatic, and the last two apparently occupied longer time in the process of protrusion. They are much larger than those of *P. transmontanus.*

The *foramen infraorbitale* issues above the middle of the fourth premolar. In *P. heterodontus* it issues above the anterior part of the first true molar. A sharp angle separates the exterior and extero-inferior faces of the malar bone.

Measurements.

		M.
Length of dental series from base of first incisor		0.257
Length of incisors on chord		0.028
Space between third incisor and canine		0.006
Length of crown of third incisor		0.013
Antero-posterior diameter of third incisor		0.008
Length of interval between canine and first premolar		0.011
Length of interval between first premolar and second premolar		0.020
Length of three contiguous premolars		0.035
Length of third premolar		0.014
Width of third premolar (greatest)		0.0075
Length of true molar series		0.057
Diameter of second true molar	antero-posterior	0.018
	transverse	0.018
Diameter of third true molar	antero-posterior	0.022
	transverse	0.019

Discovered by C. H. Sternberg in the Loup Fork beds of Cottonwood Creek, Oregon.

Art. IV.—Notes on the Birds of Fort Sisseton, Dakota Territory.

By Chas. E. McChesney, Acting Assistant Surgeon U. S. A.

LETTER OF TRANSMITTAL.

FORT SISSETON, DAKOTA TERRITORY,
December 25, 1878.

SIR: I have the honor to transmit herewith my notes on the Birds of the vicinity of Fort Sisseton, Dakota Territory. I beg to tender you the use of these notes in any connection in which you may see proper to use them.

As you are aware, I have spent considerable time during the past three years in a zoölogical examination of this region, and, as the locality has never been reported upon in the interest of ornithological science, I submit these notes as an attempt to fill the gap.

In many respects, the region differs from any other part of the Northwest. The "Coteau des Prairies" consists of an extensive plateau, rising, somewhat abruptly, nearly four hundred feet above the level of the surrounding country, having a length of over one hundred miles, and a variable width of from twenty to fifty miles. Upon this elevated plateau are many lakes, which are the annual resort of thousands of waders and wild fowl, and the region differs greatly in its fauna from that of the lower country.

Descriptions of the game birds occurring in Dakota and Montana are incorporated in these pages. This has been done in accordance with the wish of many officers of the Army stationed in these Territories, and their publication would be of great benefit to a class of intelligent gentlemen from whose observations at the various posts on the frontier we may reasonably hope for much addition to our knowledge of the habits and occurrence of birds in different localities. These descriptions have been taken, with modification, from your "Key to North American Birds," by your permission, for which, as well as for valuable assistance rendered me in identifying specimens sent you at various times, I am under great obligations.

I am, Sir, very respectfully, your obedient servant,

CHAS. E. McCHESNEY,
Acting Assistant Surgeon U. S. A.

Dr. ELLIOTT COUES, U. S. A.,
Secretary U. S. Geological Survey,
Washington, D, C.

TURDIDÆ.

TURDUS MIGRATORIUS, L.—*Robin.*

This bird appears about April 24, in small numbers, but the locality does not seem to be well suited to its summer residence, probably on account of scarcity of timber, for the bird migrates in a few days, to return in larger numbers about September 28, and finally disappears for the season, October 28, on the approach of winter. It may breed, sparingly, on the slopes of the Coteau, in the deep ravines.

TURDUS SWAINSONI ALICIÆ, (Bd.) Coues.—*Alice's Thrush.*

Is seen here for the first time each season about the 20th of May; is not common at any time, and is generally confined to the dense foliage of the thick undergrowths. I have never heard its song here.

MIMUS CAROLINENSIS, (L.) Gr.—*Catbird.*

Appears about the 1st of June, and remains until the end of September, in large numbers. Breeds here. Is usually found in the low and thick undergrowths, and is one of the most restless of our birds.

HARPORHYNCHUS RUFUS, (L.) Cab.—*Brown Thrasher.*

Usually appears by the end of April, and remains until the end of September, in limited numbers; breeds here. The Brown Thrasher, as a rule, is found only in thick timber, the outer edges of which it occasionally skirts, and I have found it to be very shy during the entire period of its stay here, so that the acquisition of specimens is very difficult.

SAXICOLIDÆ.

SIALIA SIALIS, (L.) Haldeman.—*Eastern Bluebird.*

The typical Eastern Bluebird is found here; usually appears by the 10th of May, and I believe a very few remain through the summer in some of the heavily wooded ravines on the slopes of the Coteau, as now and then one is seen in July and August. Is at no time common.

PARIDÆ.

PARUS ATRICAPILLUS, Linn.—*Black-capped Chickadee.*

Is seen from September 28 until November 14, and occasionally later, in large numbers. When nearly all of our small birds have departed, the Black-capped Chickadee remains to represent bird-life during that short interval between fall and winter. I have rarely observed it here after November, and presume it departs before winter fairly commences.

TROGLODYTIDÆ.

TROGLODYTES DOMESTICUS, (Bartr.) Coues.—*House Wren.*

June 6, 1877, I secured at the Post one specimen of true *T. domesticus*, and not var. *parkmani*, the usual Western Wren. Several were seen in the woods during the summer of 1877, which were probably of the latter variety, but no specimens were secured. Var. *parkmani* arrives in May, and, I believe, does not take its departure before October.

ALAUDIDÆ.

EREMOPHILA ALPESTRIS, (Forst.) Boie.—*Horned Lark.*

Appears September 28, and is found in small numbers until November 15, when, as a rule, it leaves this vicinity. Returns from the middle of February to the middle of March, and is then found in large numbers in company with the Snowbird (*Junco hyemalis*), with which it lives on terms of the utmost intimacy, and seems to take its departure about the same time, *i. e.*, April 17.

Occasionally the Horned Lark is observed here during the entire winter months, but such only occurs during mild seasons, although this bird is able to withstand considerable cold.

SYLVICOLIDÆ.

MNIOTILTA VARIA, (L.) V.—*Black-and-white Creeper.*

This Creeper is seen in numbers from May 20 until the 1st of June in each year, after which date its numbers rapidly diminish, and I believe it entirely withdraws from this vicinity by the middle of June.

DENDRŒCA ÆSTIVA, (Gm.) Bd.—*Summer Warbler.*

This bird arrives about May 17, and remains until September 17; is found in large numbers. Breeds here. Wherever there is timber in this region, the Summer Yellowbird will there greet you, warbling its notes, and hopping about from bough to bough, as happy, apparently, as possible; for nothing ever appears to go wrong with the Summer Yellowbird.

DENDRŒCA CORONATA, (L.) Gr.—*Yellow-crowned Warbler.*

This Warbler arrives about the 10th of May each year, and is seen in numbers in the thick foliage of the smaller trees during a week or ten days. Does not pass the summer in this region.

DENDRŒCA BLACKBURNIÆ, (Gm.) Bd.—*Blackburnian Warbler.*

Occurs only as a spring migrant. Arrives usually the 20th of May, and tarries but a day or two in this vicinity before resuming its northward flight.

DENDRŒCA STRIATA, (Forst.) Bd.—*Black-poll Warbler.*

Arrives about the 10th of May, and is seen in numbers until the 20th of that month, after which date only a few scattering ones are met with; and I believe it does not breed anywhere in this vicinity, or, if so, very sparingly, in the thick undergrowth of the woods. I have never met with it after June 15.

DENDRŒCA PENNSYLVANICA, (L.) Bd.—*Chestnut-sided Warbler.*

The Chestnut-sided Warbler is not common in this region. It arrives about May 20, but soon passes on, so that by the 1st of June none are to be seen here. Breeds further north.

DENDRŒCA MACULOSA, (Gm.) Bd.—*Black and Yellow Warbler.*

Occurs during the spring migration, and usually arrives by May 20, in some numbers, but soon disappears, as I have not seen any after the first week in June.

DENDRŒCA PINÛS, (Wils.) Bd.—*Pine-creeping Warbler.*

Is seen, in small numbers only, from May 22 until about the 1st of June each year; does not breed on the "Coteau des Prairies," to my knowledge.

SIURUS NÆVIUS, (Bodd.) Coues.—*Water Thrush.*

May 14, 1878, while out collecting in the vicinity of Fort Sisseton, Dakota Territory, I secured a single specimen of the Water Thrush. This is the only one I have seen here, and its presence is believed to be rare or casual.

GEOTHLYPIS TRICHAS, (L.) Cab.—*Maryland Yellowthroat.*

This bird occurs regularly during the spring migrations, being observed about the 1st of June, not, however, in any numbers. It does not spend the summer in this vicinity.

MYIODIOCTES CANADENSIS, (L.) Aud.—*Canadian Fly-catching Warbler.*

This Warbler arrives by the 22d of May, and is seen in some numbers for a few days, but appears to depart by the 1st of June, as I have never observed it after that date.

SETOPHAGA RUTICILLA, (L.) Sw.—*Redstart.*

Arrives between the 15th and 20th of May, each year, in small numbers. Breeds and then departs.

HIRUNDINIDÆ.

HIRUNDO HORREORUM, Barton.—*American Barn Swallow.*

Is found in small numbers from about May 25 until September 19. Breeds about the stables and often in the deserted buildings in the vicinity of the post.

TACHYCINETA (IRIDOPROCNE [*]) BICOLOR, (V.) Coues.—*White-bellied Swallow.*

I saw quite a number of White-bellied Swallows at Fort Sisseton, June 3, 1878, and secured specimens. I did not meet with it during either 1876 or 1877, and do not think it regularly visits this region.

PETROCHELIDON LUNIFRONS, (Say) Cab.—*Cliff Swallow.*

Appears May 4, and takes its departure about August 9; very abundant, and breeds here. As civilization advances, so does the Cliff Swal-

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[* *Iridoprocne,* g. n., COUES, B. C. V. i. 1878, p. 412; type *H. bicolor,* V.]

low; for here, as elsewhere, this Swallow has deserted his native cliffs for the buildings, which they persist in using, notwithstanding their nests are often roughly handled. I have seen a pair cheerfully set to work and entirely rebuild in twenty-four hours a nest that had been destroyed in an instant. On one occasion, when the entrance to the nest had been closed by plugging with a newspaper, I observed the pair go for assistance, and in a few minutes return with as many of their friends as could get around the nest, when they all took hold of the paper and tugged with a will, but to no avail, as their united strength was not sufficient to remove the obstruction; and, in consequence, the nest was abandoned.

COTYLE RIPARIA, (Linn.) Boie.—*Bank Swallow.*

Appears May 18, in considerable numbers; breeds here, and disappears about July 20. The Bank Swallow will occupy the same nest season after season if it remains undisturbed, and in case of destruction will often rebuild on or as near the site of the old nest as possible.

PROGNE PURPUREA, (Linn.) Boie.—*Purple Martin.*

Arrives about the end of May, and remains until September 9; is seen in considerable numbers and breeds here. The Purple Martin appears to be following the example of the Cliff Swallow in building its nest in the eaves of houses, not to the same extent, however, as that Swallow does, and while it has not entirely deserted the hollow trees, still the change that has been observed in more settled portions of the country is becoming quite noticeable here.

VIREONIDÆ.

VIREO OLIVACEUS, (Linn.) Vieill.—*Red-eyed Vireo.*

A single specimen of the Red-eyed Vireo was taken by me on the 6th of June, 1877, near Fort Sisseton. I had not met with the bird before, nor have I since seen it, and its occurrence here must be accidental.

VIREO GILVUS, (Vieill.) Bp.—*Warbling Vireo.*

On the same day that the preceding Vireo was taken, I also shot a Warbling Vireo about the same place. It is the only one I have ever seen on the "Coteau des Prairies." I kept a sharp lookout for these two Vireos during the spring migrations of 1878, but did not observe any.

LANIIDÆ.

LANIUS LUDOVICIANUS EXCUBITORIDES, (Sw.) Coues.—*White-rumped Shrike.*

On May 16, 1877, I secured a single specimen of this Shrike in the vicinity of Fort Sisseton: this is the only bird of the family I have seen in this region. The specimen measured as follows: 13.00 by 8.60; wing 3.90; tail 3.90; bill 0.60; tarsus 1.02; middle toe and claw 0.80. Black of side of the head meeting that of the opposite side on the forehead, and not interrupted by the white of the under eyelid.

FRINGILLIDÆ.

CHRYSOMITRIS TRISTIS, (L.) Bp.—*American Goldfinch.*

This beautiful little bird is quite common here from May 25 until the first week in June, when its numbers rapidly diminish, a few, however, spending the summer in this vicinity.

PLECTROPHANES LAPPONICUS, (L.) Selby.—*Lapland Longspur.*

Appears April 10, and remains till about May 25; is quite abundant. It does not appear in this region on its southern flight in the fall.

The specimens measure as follows:

No. 606, ♂, 11.00 × 6.50; wing 3.51; tail 2.59.
No. 607, ♂, 11.25 × 6.63; wing 3.75; tail 2.67.

PLECTROPHANES PICTUS, Sw.—*Painted Lark Bunting.*

Is seen here from April 20 until near the end of May, in large flocks (from 25 to 100 birds in each). It passes south in October in company with *P. ornatus*, and when thus migrating, I have seen immense flocks of this bird. I have sat for two hours at a time on a duck-pass, some twelve miles south of the post, and had an almost constant flight of these birds go over me. I estimated that a thousand birds passed me every minute, and their flight appeared in no wise lessening when I departed.

PLECTROPHANES ORNATUS, Towns.—*Chestnut-collared Bunting.*

Is found here during the same period as *P. pictus*, and in large numbers.

PASSERCULUS SAVANNA, (Wils.) Bp.—*Savanna Sparrow.*

Is seen from June 10 until about June 17, probably passing north. Is not common; does not breed in this vicinity so far as I have been able to discover; but I cannot understand the reason of its presence here so late in June, unless it be that it rests in the vicinity.

POŒCETES GRAMINEUS CONFINIS, Bd.—*Western Grassfinch.*

Arrives about April 17 and remains until October 18; is one of the most abundant of our birds, and is found all over the prairie. Breeds here. I observed it off and on during the entire winter of 1877–78 in sheltered places, but this was an unusual occurrence, probably accounted for by the mildness of that winter, for careful search during more severe winters has failed to reveal its presence here during that season.

MELOSPIZA PALUSTRIS, (Wils.) Bd.—*Swamp Sparrow.*

Is a rare visitor to this region. On May 14, 1878, while collecting in the vicinity of the post, I shot a single bird of this species.

MELOSPIZA MELODA [*], (Wils.) Bd.—*Song Sparrow.*

Is seen for four or five days from June 10 in small numbers; is prob-

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[* The indefensible orthography "melodia" has stood long enough. There is, indeed, the Latin noun *melodia* (μελῳδία); but the word is obviously the adjective *melod-us, -a, -um.*—ED.]

ably passing north during this time, and tarries but a few days in this region. I have not observed it returning south. As in the case of the Savanna Sparrow, I am unable to account for its presence here as a migrant so late in June, as it certainly does not breed in this vicinity.

JUNCO HYEMALIS, (L.) Scl.—*Snowbird.*

Is a regular winter resident. Arrives about November 14, generally with the first snow-storm, and disappears about April 16, with stragglers seen until May 8. As a rule is quite common during this time, but through mild winters but few are seen here.

The specimens measure as follows:

No. 602, ♂, 11.75 × 6.90; wing 4.20; tail 2.85.
No. 603, ♀, 11.73 × 6.90; wing 4.23; tail 2.90.
No. 604, ♂, 11.70 × 6.87; wing 4.20; tail 2.85.
No. 696, ♀, 12.20 × 7.00; wing 4.30; tail 2.70.
No. 697, ♂, 12.25 × 7.05; wing 4.40; tail 2.90.

SPIZELLA MONTICOLA, (Gm.) Bd.—*Tree Sparrow.*

Appears April 10 and remains until the end of October; is very abundant and breeds here. During early spring, before the trees have put forth their leaves, it is one of the most familiar birds one meets about the woods.

SPIZELLA PALLIDA, (Sw.) Bp.—*Clay-colored Sparrow.*

June 28, 1878, I shot a single Clay-colored Sparrow near the Post. This is the only one I have met with in three years' collecting here, and I therefore conclude it is only of very occasional occurrence in this region.

ZONOTRICHIA QUERULA, Gamb.—*Harris's Sparrow.*

A single specimen of this Sparrow was secured May 21, 1878, near the Post: its presence here I believe to be purely accidental, as in all my collecting here I have met with but this one bird.

CALAMOSPIZA BICOLOR, (Towns.) Bp.—*White-winged Blackbird.*

Appears on the prairie about July 14, in quite large flocks, and remains until July 24, in this vicinity. Appears quite a strange bird, and selects its feeding-grounds with considerable care, for it is not found on the high ground, but on the fertile grassy lower ground; but not on the low moist ground, however.

EUSPIZA AMERICANA, (Gm.) Bp.—*Black-throated Bunting.*

Is found here from June 9 until July 26 in considerable numbers, and I believe it breeds in this vicinity, but of this I have no positive evidence.

The specimens measure as follows:

No. 666, ♂, 10.00×6.50; wing 3.13; tail 2.27; tars. 0.87; m. t. & c. 0.95; bill 0.57.
No. 667, ♂, 9.90×6.25; wing 3.04; tail 2.10; tars. 0.80; m. t. & c. 0.86; bill 0.55.

GONIAPHEA LUDOVICIANA, (L.) Bowdich—*Rose-breasted Grosbeak.*

Usually arrives by the 10th of May, and is seen in small numbers, sometimes around the buildings at the post, but generally in the woods, until the first week in June, when it retires to the more heavily wooded ravines on the slopes of the coteaus. Departs during the early part of September. It is quite familiar during the early part of its stay here, and although I have observed it closely, I have never heard it sing at this season.

The specimen measures as follows:

No. 691, 13.00 × 8.10; wing 3.95; tail 3.35.

CYANOSPIZA CYANEA, (L.) Bd.—*Indigo-bird.*

The Indigo-bird is not common in this vicinity; a few are seen during the migrations each May, generally about the 25th, but the bird does not remain in this region during summer.

CARDINALIS VIRGINIANUS, (Briss.) Bp.—*Cardinal Grosbeak.*

The Cardinal Redbird is only of casual occurrence in this region. On May 25, 1877, while out collecting in the vicinity of Fort Sisseton, I saw a pair in the scattered trees on the outside of a thick growth of timber to the east of the post; they were in plain view, and as the more brilliantly plumaged birds are rare in this vicinity, the appearance of the male bird was the more striking, as it sat watching me from the highest tree-top; the female was perched upon a tree near by, intensely interested in my movements, but not more so than I was in theirs. Despite all my endeavors, I could not succeed in securing either bird; two or three times they took to wing and alighted in trees a little further from me each time, not seeking the thick woods, but keeping me in plain view all the while; they finally took to flight in a southerly direction, and were soon out of sight.

A male bird of this species was seen several times during the summer of 1877, in a deep ravine at the head of the Coteau. It would come in the early morning, and sit on the same tree, outside of the cabin, morning after morning, and if undisturbed would sing for ten or fifteen minutes, but would fly away on the slightest noise being made. I doubt not the female was well concealed in the woods near by. Many endeavors were made to capture it, but it eluded them all.

ICTERIDÆ.

DOLICHONYX ORYZIVORUS, (L.) Sw.—*Bobolink; Reed-bird; Rice-bird.*

Sexes are entirely different in color.

♂ in spring: black, usually more intense beneath; back of neck buff; shoulders, rump, and upper tail-coverts ashy-white; space between the shoulders streaked with black, buff, and ashy; outer quills edged with yellowish; bill blackish horn; feet brown.

♂ in fall, ♀, and young: yellowish-brown above, brownish-yellow below; crown and back conspicuously, upper part of neck, rump, and sides of body less broadly streaked with black; crown with a middle and lateral light stripe; wings and tail blackish, pale-edged; bill brown. The male changing shows confused characters of both sexes. Length, 6½–7½ inches; wing 3½–4; tail 2½–3 inches.

The Reed-bird forms a delicate morsel for the table, and is generally distributed over Dakota.

At Fort Sisseton it arrives May 19, and remains until about July 24. Is found in considerable numbers scattered all over the "Coteau des Prairies," where it breeds, and soon after takes its departure. The Bobolink is in prime condition for the table on its arrival, and is justly esteemed a delicate morsel.

MOLOTHRUS ATER, (Gm.) Gr.—*Cowbird.*

Is seen from April 17 until October 28 in large numbers.

AGELÆUS PHŒNICEUS, (L.) V.—*Red-winged Blackbird.*

Arrives about April 17 and remains until October 28; is quite common around the sloughs and moist places, where it also breeds.

XANTHOCEPHALUS ICTEROCEPHALUS, (Bp.) Bd.—*Yellow-headed Blackbird.*

Arrives April 20, to remain until September 28; is found in large numbers. It will be observed that this bird arrives a little later and takes its departure long before the other Blackbirds do.

The specimens measure as follows:

No. 629, ♂, 17.00 × 10.25; wing 5.65; tail 4.27; tarsus 1.30; bill 0.80.
No. 630, ♂, 16.75 × 10.25; wing 5.25; tail 3.90; bill 0.85.

STURNELLA MAGNA NEGLECTA, (Aud.) All.—*Western Field Lark.*

Sexes are alike in color.

Prevailing ground-color gray; each feather of back and neck blackish, with terminal reddish-brown area and sharp brownish-yellow borders; crown streaked with black and brown, with a pale middle stripe; behind the eye is a blackish line, and over the eye is a pale stripe; several outer tail-feathers white; edge of wing, spot over eye, and under parts generally bright yellow; the sides flaxen-brown, with sharp blackish streaks; the breast with a large black crescent, which is obscure in the young. Length 10–11 inches; wing 5; ♀ a trifle smaller.

This is one of the earliest of our spring arrivals, making its appearance usually about April 13; it varies with the opening of spring, of which event, anxiously looked forward to by all as the relief from our long winter's confinement to closed houses and heated rooms, it is the sure harbinger. Very common; breeds here, and takes its departure about the middle of October.

ICTERUS SPURIUS, (L.) Bp.—*Orchard Oriole.*

Arrives usually by the 22d of May, and in considerable numbers; breeds in the woods, all over the Coteau, and departs about September 1.

ICTERUS BALTIMORE, (L.) Daud.—*Baltimore Oriole.*

Arrives about May 19, and remains until September 1. Is seen in small numbers about the woods all over the head of the Coteau; breeds here.

The specimens measure as follows:

No. 640, ♀, 11.75 × 7.75.
No. 660, ♂, 11.90 × 7.70.

QUISCALUS PURPUREUS, (Bart.) Licht.—*Purple Grackle.*

This bird arrives about April 17, and from that time until its disappearance at the end of October is found in large numbers all over the prairie and about buildings, as also in woods, where I have often found it particularly numerous, and under such circumstances as to lead me to believe that it was indulging in that carnivorous propensity observed by Mr. Gentry and mentioned on page 204 of Professor Coues's Birds of the Northwest.

CORVIDÆ.

CORVUS CORAX, Linn.—*Raven.*

The only Ravens I have ever seen on the "Coteau des Prairies" were a pair I procured from Indians July 9, 1876; I believe they had been bred in the immediate vicinity of the Post, to the north, as stated by the Indians, and also on account of their age; although it seems strange that their occurrence could have escaped my notice in the careful scrutiny I have given the region.

CORVUS AMERICANUS, Aud.—*Common Crow.*

The Common Crow is a rare visitor to this region. It is occasionally seen late in winter and in the early spring, but does not remain to molest the agriculturist. Much as elsewhere, the Crow appears as a very wary, I might almost say knowing, bird: it is exceedingly difficult to get within gun-shot range of it. At Fort Berthold, D. T., where I observed it in numbers in the spring of 1873, doing much damage to the young corn and other parts of the crop, it was quickly driven from that vicinity by poisoning corn and sprinkling it around the scene of their operations, and although only a few dead birds were discovered, it took the hint and left for a more agreeable abode.

CYANURUS CRISTATUS, (L.) Sw.—*Blue Jay.*

Is seen occasionally during the summer months in the heavily timbered ravines on the slopes of the Coteau; does not occur in any numbers. November 30, 1878, I saw a single Blue Jay in the woods at Fort Sisseton. This Jay was also in the vicinity of the Post as late as December 10.

TYRANNIDÆ.

TYRANNUS CAROLINENSIS, (L.) Bd.—*Kingbird.*

Arrives May 16, and departs about September 9; is very common during the period of its stay. Breeds here.

TYRANNUS VERTICALIS, Say.—*Arkansas Flycatcher.*

Is found from May 22 until September 9 in considerable numbers; is associated with the preceding species, but is not nearly so common. Breeds here.

CONTOPUS VIRENS, (L.) Cab.—*Wood Pewee.*

Arrives about the 15th of May in numbers, and is seen until June 6, when it takes its departure. Does not breed in this vicinity, to my knowledge.

CAPRIMULGIDÆ.

CHORDILES VIRGINIANUS, (Gm.) Bp.—*Night-hawk.*

The typical *C. virginianus* makes its appearance about May 25, and remains until September. Is seen in large numbers, and breeds here. This bird often builds its nest on the bare ground, with scarcely any protection from winds or rains. I have also observed it build in a shallow excavation in a large bowlder, just the place to get the full benefit of all the rain at that season of the year.

TROCHILIDÆ.

(?) TROCHILUS COLUBRIS, Linn.—*Ruby-throated Hummingbird.*

A single Hummingbird seen at Fort Sisseton, September 11, 1877, I place under this head with a doubt. The specimen was not secured, and I did not have an opportunity of observing it closely, as it was almost constantly in motion, flying from flower to flower.

CUCULIDÆ.

COCCYGUS ERYTHROPHTHALMUS, (Wils.) Bp.—*Black-billed Cuckoo.*

The Black-billed Cuckoo reaches this region by the end of May and remains until the end of September. Its notes are occasionally heard, but the bird is not common. It undoubtedly breeds here.

The specimen measures as follows:

No. 695, ♀, 16.00 × 11.90; wing 5.60; tail 6.40.

PICIDÆ.

PICUS VILLOSUS, Linn.—*Hairy Woodpecker.*

The typical *villosus* is a regular winter resident; it can be seen and heard on the coldest days pecking away at the trees. I have never observed it during the spring and summer months, and presume it departs on the approach of spring. I do not believe it breeds in this vicinity.

MELANERPES ERYTHROCEPHALUS, (L.) Sw.—*Red-headed Woodpecker.*

Appears early in May, and remains until the end of September; is found in small numbers; breeds here.

COLAPTES AURATUS, (Linn.) Sw.—*Golden-winged Woodpecker.*

During the winter of 1877–78, I sometimes met with this bird in my rambles, but it was not by any means common, and its presence here at that season is an event that only occurs in mild winters. Ordinarily the Golden-winged Woodpecker makes its appearance about the end of April, and from that time till the end of October, when it usually departs, is seen in considerable numbers; generally about the dead oaks, in which it breeds.

STRIGIDÆ.

BUBO VIRGINIANUS, (Gm.) Bp.—*Great Horned Owl.*

This Owl is a summer resident on the "Coteau des Prairies," where I have secured several specimens; it is not by any means common, however.

NYCTEA SCANDIACA, (L.) Newt.—*Great White Owl.*

Is occasionally seen during the winter on the prairie; not, however, in any numbers.

FALCONIDÆ.

CIRCUS CYANEUS HUDSONIUS, (L.) Coues.—*Marsh Hawk.*

Arrives May 2, and remains until about the middle of October; is seen in small numbers; breeds here.

ELANOIDES FORFICATUS, (L.) Coues.—*Swallow-tailed Kite.*

The following note is taken from Vol. 3, No. 3, p. 146, Bulletin of the Nuttall Ornithological Club: "I am informed by my valued correspondent Dr. C. E. McChesney, U. S. A., of the occurrence of *Elanoides forficatus* at Fort Sisseton, Dakota, during nearly the whole of last winter. The Indians also informed Dr. McChesney of the residence of the bird along the James River in the winter and early spring months, and of its giving them some trouble by springing their traps, occasionally, however, getting caught itself. This account tallies with Trippe's Minnesota record (north of Mille Sac, lat. 47°). While at Pembina, Dakota, lat. 49°, I was assured by an officer of the occasional appearance of the bird there.—Elliott Coues, Washington, D. C."

I made many attempts to secure a specimen, but the birds were very shy, and I could not succeed in getting within gun-shot range of any, as they would alight in the highest tree-tops, from which they could watch me and take to wing when necessary.

ACCIPITER FUSCUS, (Gm.) Bp.—*Sharp-shinned Hawk.*

Is found in small numbers from May 1 until about the end of October. Breeds here.

ACCIPITER COOPERI, Bp.—*Cooper's Hawk.*

Cooper's Hawk is a regular spring visitor, but does not remain any time in this vicinity; usually arrives May 18, and none are seen after the end of that month. Is not common.

FALCO COMMUNIS, Variorum.—*Peregrine Hawk.*

Arrives early in April, closely following the spring migration of the wild fowl, and the majority pass further north; but a few remain in this vicinity during the summer.

FALCO COLUMBARIUS, Linn.—*Pigeon Hawk.*

Is not of common occurrence on the Coteau. A few were observed during the last week in April, 1877, and quite a number were shot during the early part of the summer of 1878, but it does not remain through the summer.

FALCO SPARVERIUS, Linn.—*Sparrow Hawk.*

Is found here from April 15 to near the end of October; is at no time very common. Breeds here.

BUTEO BOREALIS CALURUS, (Cass.) Rigdw.—*Western Hen Hawk.*

The Western Hen Hawk arrives about the 1st of May, and remains until cold weather drives it to a more southern climate, usually about the 1st of October; is not common.

BUTEO SWAINSONI, Bp.—*Swainson's Buzzard.*

Arrives about May 10, and remains until October 30; is seen in considerable numbers. Breeds here.

AQUILA CHRYSAËTUS, Linn.—*Golden Eagle.*

Was seen during the spring of 1878; also on November 25, 1878, a single Golden Eagle was seen on the Coteau, about 20 miles east of Fort Sisseton.

HALIÆTUS LEUCOCEPHALUS, (L.) Savigny.—*Bald Eagle.*

Is only a casual visitor to this region. April 30, 1878, a single specimen was taken in the vicinity of the post.

CATHARTIDÆ.

CATHARTES AURA, (L.) Illiger.—*Turkey Buzzard.*

Is found here from May 24 until October 30 in considerable numbers. Breeds here.

COLUMBIDÆ.

ECTOPISTES MACRURUS, (L.) Coues.—*Wild Pigeon.*

Sexes are different in color.

♂ dull blue with olivaceous tinge on back; below, dull purplish-red, whitening on vent and under tail-coverts; sides of neck golden and ruby; some wing-coverts black-spotted; quills blackish, with slaty whitish and rufous edging; middle tail-feathers bluish-black, the others white or ashy, the inner webs black toward the base, with a chestnut patch; bill black; feet yellow. ♀ and young duller and more brownish or olivaceous above, below dull grayish, with a tawny tinge anteriorly, or quite gray; very young have the feathers skirted with whitish: 15 to 17 inches long; wing and tail 7–8 inches. Tail of 12 feathers.

During the fall of 1877, the Wild Pigeon was taken in some numbers about the head of the "Coteau des Prairies." I also observed it in July of 1878, but it is only an occasional visitor to this region.

ZENÆDURA CAROLINENSIS, (L.) Bp.—*Carolina Dove.*

Sexes are different in color.

♂ brownish-olive above, glossed with blue on the crown and upper part of neck; below, purplish-red, becoming tawny-white on the vent and under tail-coverts; neck metallic golden; a velvety black spot on the feathers covering the ear, and others on the wing-coverts and shoulders; middle tail-feather like the back, the rest ashy-blue at base, then crossed by a black bar, then white or ashy-white; bill very slender, black; feet carmine. ♀ and young differ, as in the Wild Pigeon. 11–13 inches long; wing 5–6; tail 6–7. Tail of 14 feathers.

Arrives about May 17, and remains until September 30; is found in considerable numbers; breeds here.

TETRAONIDÆ.

TETRAO OBSCURUS, Say.—*Dusky Grouse.*

Sexes are scarcely distinguishable by color.

♂ blackish, more or less variegated with slate-gray or a peculiar slaty-black; throat and sides marked with white; breast black; belly slaty; tail clouded with slate and black, and with a broad terminal slate bar: 18–20 inches long; wing 9–10; tail 7–8. ♀ smaller, not particularly different in color, but not so uniformly dark, having ochrey or reddish-brown variegations in places. Rocky and other mountains. United States to the Pacific. Tail normally of 20 feathers; no peculiar feathers on the neck; legs feathered to the toes.

CENTROCERCUS UROPHASIANUS, (Bp.) Sw.—*Sage Cock.*

The sexes are alike in color.

Tail very long, equalling or exceeding the wings, of twenty stiffened, graduated feathers tapering to a point; sides of lower neck with a patch of peculiar sharp scaly feathers, the shafts of which terminate in bristly filaments, sometimes 3 to 4 inches long in the ♂; legs full-feathered. Very large: 2 feet or more long; wing and tail each about a foot. ♀ much smaller; above variegated with black, gray, and tawny; below, a large black abdominal patch in the adult. Sage-brush tracts of Western United States.

Of all the birds of the Grouse family, the Sage Hen is perhaps the poorest for food; the young can be so cooked, by parboiling and stewing, up to about the 1st of October, as to furnish a fair article of diet; but after this date the flesh is too highly flavored with the wormwood to be rendered palatable by any means with which I am acquainted.

PEDIŒCETES PHASIANELLUS COLUMBIANUS, (Ord.) Coues.—*Common Sharp-tailed Grouse.*

Sexes are alike in color.

Neck without peculiar feathers; tail very short, of sixteen narrow, soft, true tail-feathers, and a middle pair, apparently developed coverts, projecting an inch beyond the rest (often worn off or not fully developed, so that there is but little, if any, projection of these coverts); legs fully feathered: length about 18 inches; wing 8–9; tail 5–6. The markings black, white, and especially tawny; below, the spots fewer, brown, U-shaped; throat buff.

This Grouse is found here in small numbers throughout the entire year. The region is not favorable for the increase of this bird, for, aside from those destroyed by the Indians in season and out of season, the destruction of the young by birds of prey and of the nests by prairie fires, the only food it can find during the winter consists of a few scattered rosebuds.

CUPIDONIA CUPIDO, (L.) Bd.—*Pinnated Grouse; Prairie Hen.*

The sexes are alike in color.

Neck with a peculiar tuft of loose, lengthened, tapering feathers, beneath which is a patch of bare, brightly colored skin, capable of great distention; tail short, rounded, of eighteen stiffish, non-tapering feathers; feet barely feathered to the toes. Length 16–18 inches; wing 8–9; tail about 5. Above, variegated with black, brown, tawny, or ochrey, and white, the latter especially on the wing; below, pretty regularly barred with dark brown, white, and tawny; throat tawny, a little speckled or not; vent and under tail-coverts mostly white; quills dark brown, with white spots on the outer webs; tail dark brown, with narrow or imperfect white or tawny bars and tips. ♀ smaller, with shorter neck-tufts.

Missouri River, above Fort Randall, and probably as high as Fort Sully, D. T.

During the fall of 1876, I observed the Pinnated Grouse here for the first time, and apparently it was more common than the preceding species, and in accordance with the history of the two birds I anticipated the speedy disappearance of the Common Sharp-tailed, but this has not occurred, and I saw only two or three specimens of the Pinnated Grouse during the season of 1877, and I am informed none were taken during the season of 1878, so that at the present time *C. cupido* is not found here, while *P. phasianellus* is the characteristic Grouse of this region.

This experience with the two Grouse is at variance with that of Surgeon J. F. Head, U. S. A., Minnesota record, as given in Professor Coues's "Birds of the Northwest," and also with that of many other good observers, and I can only explain the matter on grounds of the unfitness of the locality as regards shelter, and the fact that the country has not been settled and the soil sufficiently cultivated to furnish them their favorite food; when these conditions shall have been removed, I anticipate the appearance of *C. cupido* in this region to displace *P. phasianellus.*

BONASA UMBELLUS UMBELLOIDES, (Dougl.) Bd.—*Rocky Mountain Ruffed Grouse.*

Sexes are nearly alike in color.

The Eastern representative of this bird is known as the Partridge in New England and the Middle States, and as the Pheasant in the Southern States. Sides of neck with a tuft of numerous (15–30) broad, soft, glossy-black feathers; head with a full soft crest; tail about as long as the wings, amply rounded, of (normally) 18 soft broad feathers; feet naked below. Length 16–18 inches; wing 7–8. Slaty-gray is the prevailing color in this variety.

Rocky Mountain region.

ORTYX VIRGINIANA, (L.) Bp.—*Virginia Partridge; Quail.*

Sexes may be distinguished by color.

This is the Virginia Partridge or Quail: Bob White. Wherever the Ruffed Grouse is called "Partridge" in the New England and Middle States, this bird is there known as "Quail," and wherever in the Southern States the Ruffed Grouse is called "Pheasant," this bird is there known as "Partridge."

Head completely feathered, the crown ones somewhat lengthened and erectile, but hardly forming a true crest. Forehead, a line over the eye, and the throat white, bordered with black; crown, neck all round, and upper part of breast brownish-red; other under parts tawny-whitish, all with more or fewer doubly crescentic black bars; sides broadly streaked with brownish-red; upper parts variegated with chestnut, black, gray, and tawny, the latter edging the inner quills. ♀ known by having the throat buff instead of white, less black about the fore parts, and general colors less intense; rather smaller than the ♂: 9–10 inches long; wing 4½–5; tail 2½–3.

Eastern United States to high central plains; the characteristic game bird of this country. Missouri River as high as Fort Sully, Dakota, where I saw them in 1871.

CHARADRIIDÆ.

SQUATAROLA HELVETICA, (L.) Cuv.—*Black-bellied Plover.*

Sexes are alike in color.

A small hind toe, hardly ¼ inch long (this is the only 4-toed Plover treated of in this pamphlet); plumage speckled. Adult in breeding season (rarely seen in the United States): face and entire under parts black, upper parts variegated with black and white or ashy; tail barred with black and white; quills dusky, with large white patches. Adult at other times (and this is the plumage in which seen in Dakota) and young: below, white, more or less shaded with gray, the throat and breast speckled with dusky; above, blackish, speckled with white or yellowish; the rump white, with dark bars; legs dull bluish. Old birds changing show every grade, from a few isolated black feathers on the under parts to numerous large black patches. Length 11–12; wing 7 or more; tail 3; bill 1–1¼.

I have only observed this bird in Dakota Territory during the fall migration.

During the migrations I have kept a sharp watch for the Black-bellied Plover, but I have not yet discovered the bird passing this region during the spring; it arrives, however, on its southern flight, about October 25, and remains in this vicinity for four or five days, during which time it is seen in considerable numbers.

It may be that this Plover has succeeded in eluding my search during the spring, and that it does really pass this region. I have elsewhere mentioned in these notes of this bird being one of the two exceptions, falling under my notice here, of a migratory bird appearing in the fall that is not known to pass this region during the spring. The other exception is that of the Blue Goose, which, if a valid species, we should naturally expect to find passing this region, as being within the normal migratory spring range of its kind. But with the Black-bellied Plover the case is different: its normal spring line, so far as is now known, is not near as far inland as Dakota.

On page 449 of his "Birds of the Northwest," Dr. Coues states that Dr. Suckley found it "moderately abundant" in Minnesota. I suppose reference is here made to the time (1853) when Dr. Suckley was on duty as surgeon and naturalist of the Survey of the Forty-seventh Parallel, under Governor I. I. Stevens. Although the party did not leave Saint Paul until June 8 of that year, Dr. Suckley was engaged for some time before in making collections in the neighborhood of Saint Paul, and was so engaged during the migration of the Golden Plover through that region; and as this bird is in full breeding plumage at this time, and much resembles the Black-bellied Plover, it is not improbable that Dr. Suckley mistook *C. fulvus virginicus* for *S. helvetica*. I believe Dr. Suckley's collection, to which reference is made above, was lost in the Ohio River, which is much to be regretted, as I know of no observations made since that time (1853) that would support Dr. Suckley's reference of this bird to Minnesota during the spring migrations. [*]

CHARADRIUS FULVUS VIRGINICUS, (Borck.) Coues.—*American Golden Plover.*

The sexes are alike in color.

No hind toe; plumage speckled above, and in the breeding season (generally so seen throughout Dakota and Montana during the spring migration) black below, as in the last species, but much of the speckling bright yellow, and the rump and upper tail-coverts like the back; forehead and a broad line over the eye to the nape white; tail-feathers grayish-brown, with imperfect white or ashy bars; feathers of the armpits gray or ashy. At other times, the under parts nearly as in the last species. Length 10--11; wing 7 or less; tail under 3; bill 1 or less. A highly-rated game bird, abundant in most parts of Dakota during the spring and fall migrations.

Early in May, the Golden Plover's migrations find him in this region. At this time, the birds are in full breeding plumage, and tarry but a few days. Early morning and evening appears to be the time selected for flight, and from the 1st to the 10th of May, they pass over in flocks, containing from thirty or forty to several hundreds, and sometimes thousands, of birds, and so constant is the flight that a person here could scarcely be blamed for thinking that he must stand on the only route leading to their northern summer resort. At this time, the birds are in prime condition for the table, and there is no trouble in taking all that are required. From about September 23 to October 26, it loiters here on its return to the South in considerable numbers.

Professor Coues, in his "Birds of the Northwest," page 451, states that he met with this bird between Fort Randall and Yankton on the Missouri River, in company with the Bartramian Tattler and Esquimaux Curlew, and that he found them not at all shy. Where the line of departure may be taken I know not, but the Esquimaux Curlew does not pass this region, and the Golden Plover has become a very shy bird by the time of its arrival here. When feeding, they are constantly on the lookout for danger, and post their pickets regularly, so that it is almost

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[* This is doubtless a just observation. I have found the Golden Plover extremely numerous in Eastern Dakota during the spring migration.—C.]

impossible to get within gun-shot range of the flocks; when on the wing, however, they loose their shyness, and are then easily captured.

ÆGIALITIS VOCIFERA, (Linn.) Cass.—*Kildeer Plover.*

This bird, the most restless of all the Plover family, arrives April 13, and remains until about the 1st of September, and is found in large numbers around all the lakes, and to some extent in cultivated upland, which it seems to like for nesting purposes.

ÆGIALITIS SEMIPALMATA, (Bp.) Cab.—*Semipalmated Plover.*

I believe this Plover only occasionally passes this region during the spring migrations. On May 11, 1877, while out collecting, a flock containing thirty-five or forty birds passed high overhead, from which a single specimen was secured. I have never met with it in the fall.

The specimen measures as follows:

No. 690, 14.50 × 7.10; wing 4.60; tail 2.15.

HÆMATOPIDÆ.

STREPSILAS INTERPRES, (L.) Ill.—*Turnstone.*

Sexes are alike in color.

Adult in summer pied above with black, white, brown, and chestnut-red, the latter color wanting in winter and in young birds; below, from the breast (which is more or less completely black), throat, most of the inner quills, bases and shafts of outer quills, and bases and tips of tail-feathers white; bill black; feet orange: 8–9; wing 5½–6; tail 2½; bill ⅞, almost recurved, sharp-pointed: legs bare but a little way: no obvious basal webbing of toes.

I believe that the Turnstone will be found to occur throughout many parts of Dakota during the spring migration. Careful search should be made for the bird at this time, and its occurrence reported. It will be found usually along the beach turning over stones in search of its food, from which curious habit it derives its name.

The Turnstone regularly passes this region during May of each year. I have observed it for the last three years on several occasions, and the bird was always quite shy, and I found considerable difficulty in taking specimens. As I have observed it here, the Turnstone is not a gregarious bird, as I have never seen more than three or four together. This record constitutes the only Dakota notice of this bird, so far as I am aware.

The specimens measure as follows:

No. 649, ♂, 17.00 × 9.00; tarsus 1.00.
No. 693, ♀, 18.50 × 9.40; wing 5.90; tail 2.70; tars. 0.94; m. t. & claw 1.12; bill 0.93.

RECURVIROSTRIDÆ.

RECURVIROSTRA AMERICANA, Gm.—*Avocet.*

Sexes are alike in color.

White; back and wings with much black; head and neck cinnamon-brown in the adult, ashy in the young; bill black; legs blue; eyes red: 16–18 long; wing 7–8; tail 3½; legs very long. Bill recurved.

Arrives at the beginning of May, and breeds sparingly in this vicinity.

The majority pass further north, and return early in July, from which time the Avocet is quite a familiar shore bird around the preferred lakes, until the approach of winter drives it south, usually October 30.

PHALAROPODIDÆ.

STEGANOPUS WILSONI, (Sab.) Coues.—*Wilson's Phalarope.*

Is found here from about May 17 until July 24, by which time the young are well on the wing, and fully able to care for themselves. It is singular that this bird should leave this region so early, but close search has failed to reveal its presence after July.

SCOLOPACIDÆ.

PHILOHELA MINOR, (Gm.) Gr.—*American Woodcock.*

Sexes are alike in color.

First three outer quills incised and scythe-shaped; wings short, when closed the quills hidden by the coverts and tertiaries; legs feathered nearly to the joint in front, shorter than middle toe and claw, scaly before and behind; toe slender, free to the base; bill much longer than the head, stout and deep at base, grooved nearly its whole length, the tip knobbed; gape very short and narrow; ear under the eye, which is set in the back upper corner of the head; colors above variegated and harmoniously blended black, brown, gray, and russet; below pale warm brown of variable shade. ♂ 10–11; ♀ 11–12; extent 16–18; wing 4½–5; bill 2½–3; weight 5–9 ozs. Bogs, swamps, wet woodland, and fields. Occurs in the eastern, and probably southern, portions of Dakota.

The only Woodcock I have seen in this vicinity was one shot by my friend Capt. John Vander Horck, July 28, 1877; it was captured on a piece of low, marshy ground, some five miles north of the post, and from its manner of flight and behavior before being shot I mistook it for a Carolina Rail. It is quite probable that such has happened to me before, and that this bird may occur in small numbers on the "Coteau des Prairies" during July.

Since the above was written, and during my absence in the summer of 1878, several Woodcock have been taken in the vicinity of Fort Sisseton.

GALLINAGO WILSONI, (Temm.) Bp.—*American Snipe.*

Sexes are alike in color.

Bill much longer than the head, perfectly straight, soft to the end, where it is somewhat widened, and grooved on top; gape narrow, not reaching beyond the extreme base of upper mandible; ear under eye; legs feathered nearly to the joint, a little shorter than middle toe and claw; toes perfectly free; crown black, with a pale middle stripe; back varied with black, bright bay, and tawny, the latter forming two lengthwise stripes on the shoulders; neck and breast speckled with brown and dusky; lining of wings barred with black and white; tail usually of 16 feathers, barred with black, white, and chestnut; sides waved and dusky; belly dull white; quills blackish, the outer white-edged. Length 9–11; wing 4½–5¼; bill about 2½; whole naked portion of leg and foot about 3.

"This is the genuine Snipe, of all birds loosely so called; its name of English Snipe is a misnomer, as it is indigenous to this country, and distinct from any European species, though closely resembling one of them. Open wet places of North America at large; migratory."

Occurs in many portions of Dakota during the spring and fall migrations; a prime bird for the table.

Wilson's Snipe is seen here only during the spring migrations, which, for this bird, are generally from the 1st to the 6th of May, but sometimes there is a variation of a week either way. Whatever may be the time of its arrival, the bird does not seem to pass this region in any numbers, but the few taken are in prime condition for the table, showing that its migration has been by easy flights. Several careful searches for the bird, during the fall, have not been attended with successful results, and I believe it does not pass this way on its southern flight, or, if so, it certainly does not loiter.

The specimen measures as follows:

No. 621, ♀, 17.00 × 10.50; wing 5.21; bill 2.43; tarsus 1.21.

MACRORHAMPHUS GRISEUS, (Gm.) Leach.—*Red-breasted Snipe.*

Sexes are alike in color.

A very Snipe-like bird, with the bill exactly as in the last species, but readily distinguished generically; legs bare upwards of ¾ of an inch, longer than middle toe and claw; outer and middle toes connected by an evident membrane; tail of 12 feathers. Tail and its coverts at all seasons conspicuously barred with black and white (or tawny); lining of wings and armpits the same; quills dusky; shaft of first quill and tips of middle ones, except the long inner ones, white; bill and feet greenish-black. In summer, brownish-black above, variegated with bay; below, brownish-red, variegated with dusky; a tawny stripe over the eye and a dark one from bill to eye; in winter, plain gray above and on the breast, with few or no traces of black and bay; the belly, line over eye, and under eyelid white. 10–11; wing 5–5½; tail 2½; bill about 2½.

Occurs throughout a large portion of Dakota during the migrations, in flocks, and prefers the shores of the lakes instead of wet meadows.

This Snipe passes north usually about the end of April, but often it is delayed until the 10th of May. I have taken it in considerable numbers at this time, and have always found it a prime bird for the table, being often brought into requisition to supply the place of "quail on toast" for breakfast. It returns to this region about the 20th of September, from which time until the end of October, when it departs, it is the most familiar Wader around the shores of our lakes.

EREUNETES PUSILLUS, (Linn.) Cass.—*Semipalmated Sandpiper.*

Is seen here in large numbers from April 29th until about the 1st of June, when its numbers rapidly diminish, and from that date until near the end of July but few have been observed in this vicinity; returns in numbers early in August, and from that time forward until the lakes commence to close, about November 1, hundreds may be seen at a time around the shores of any of the lakes.

The specimen measures as follows:

No. 673, ♀, 12.00 × 6.40; wing 3.75; tail 1.70; tars. 0.77; m. t. & claw 0.83; bill 0.73.

TRINGA MINUTILLA, Vieill.—*Least Sandpiper.*

Shares much the same habits here as the preceding species; is very common.

TRINGA BAIRDI, Coues.—*Baird's Sandpiper.*

This Sandpiper appears about April 28, and remains until the beginning of June, after which time none are seen here during the remainder of the season. During the time of its sojourn here it is quite abundant. Its habits seem to differ greatly from its little congener, *T. bonapartii.*

The specimen measures as follows:

No. 626, ♀, 14.75 × 7.75; wing 5.00; tail 2.43; tarsus 0.82; bill 0.88.

TRINGA MACULATA, Vieill.—*Pectoral Sandpiper.*

Is found here from about the middle of July to the first of August in considerable numbers.

TRINGA BONAPARTII, Schl.—*Bonaparte's Sandpiper.*

Arrives about the 5th of May and remains until June 13. Is seen in considerable numbers during this time.

LIMOSA FEDOA, (L.) Ord.—*Great Marbled Godwit.*

Sexes are alike in color.

Color and size the same as the Curlew's, but the bill is usually slightly curved *upward,* while among the Curlews it is curved *downward;* this is the main point for the novice.

Tail barred throughout with black and rufous; rump and upper tail-coverts like the back; no pure white anywhere. General plumage rufous or cinnamon-brown; below, nearly unmarked and of very variable shade, usually deepest on the linings of the wings; above, variegated with black and brown or gray; quills rufous and black; bill flesh-colored, largely tipped with black; feet dark. Large, 16–22; wing about 9; tail about 3½; bill 4–5, grooved nearly to the end, usually slightly recurved.

Abundant through many portions of Dakota during the spring and fall migrations. The young birds are excellent food.

Is found here in great numbers from June 14 until September 22, with early arrivals in the latter part of April, and stragglers as late as the middle of October. Does not breed on the Coteau, but does so about forty miles to the east, in Minnesota, as also in parts of Dakota west of the Missouri River.

The specimen measures as follows:

No. 641, ♀, 31.50 × 19.50; wing 9.75; tail 3.00; bill 4.90; tars. 3.25; m. t. & claw 2.10.

LIMOSA HUDSONICA, (Lath.) Sw.—*Hudsonian Godwit.*

Sexes are alike in color.

Tail black, largely white at the base, its coverts mostly white; rump blackish; under parts in the breeding season (and this is the condition in which seen in Dakota) intense rufous, variegated (chiefly barred) with dusky; head, neck, and upper parts brownish-black, variegated with gray, reddish, and usually with some whitish speckling; quills blackish, more or less white at the base. Young and apparently winter specimens much paler, tawny whitish below, more gray above. Considerably smaller than the foregoing: about 15; wing 8 or less; bill 3½ or less.

Occurs as far south in Dakota as latitude 45° 30′ in small numbers; may be more common in the northern part of the Territory.

Several flocks of the Hudsonian Godwit were observed at Fort Sisseton from the 6th to the 26th of May, 1878, and a few were observed in the early spring of 1877, but not, however, in any such number as the succeeding spring. It does not breed anywhere in this region, and I was greatly surprised at meeting with the bird so far south in May; though it may spend the winters further south than this place, still it is essentially a bird of high northern latitudes, and usually only enters the northern portion of the United States during the winter.

TOTANUS SEMIPALMATUS, (Gm.) Temm.—*Willet.*

Sexes are alike in color.

Toes with two subequal webs; legs bluish or dark; bill straight, comparatively stout, grooved little, if any, more than half its length; toes with two conspicuous basal webs: 12–16; wing 7–8; tail 2½–3; bill 2–2¾. In summer, gray above, with numerous black marks, white below, the jugulum streaked, the breast, sides, and under tail-coverts barred or with arrow-shaped marks of dusky (in winter, and in young birds all these dark marks few or wanting, except on jugulum); upper tail-coverts, most of the middle quills, and basal half of outer quills white; ends of outer quills, their coverts, lining of wings, and armpits black; bill bluish or dark.

This bird arrives about April 29, and remains until September 13, in considerable numbers; breeds here; it seems to feed to some extent on fish, and the flesh is not particularly desirable as food. A strange habit the old birds have of pushing forward the young when there is danger; I remember once seeing a flock containing about a hundred birds, of which probably twenty-five were old ones, quietly feeding on the edge of a lake, but the instant the birds were approached they all took to flight; and the old ones immediately arranged themselves on the outside furthest from me, leaving the young between themselves and the source of danger, and in this order they were permitted to take their departure without molestation.

TOTANUS MELANOLEUCUS, (Gm.) Vieill.—*Greater Telltale.*

Sexes are alike in color.

Feet with very small web between inner and middle toes; legs yellow or green; bill straight or slightly bent upward, very slender, grooved half its length or less, black; legs long and slender. In summer, ashy-brown above, varied with black and speckled with whitish; below, white, lower throat streaked, and breasts, sides, and under tail-coverts speckled or barred with blackish; these latter marks few or wanting in winter and in the young; upper tail-coverts white, with dark bars; tail-feathers marbled or barred with ashy or white; quills blackish. Large: length over 12; wing over 7; tail 3 or more; bill 2 or more.

Arrives during the last week in April or the first part of May, and is seen in considerable numbers for a week or more while passing north. Returns in numbers in the fall, and departs about the same time as *T. flavipes.*

TOTANUS FLAVIPES, (Gm.) Vieill.—*Lesser Telltale.*

Sexes are alike in color.

A miniature of the last; colors precisely the same; legs comparatively longer; bill grooved rather further: length under 12; wing under 7; tail under 3; bill under 2.

These two Telltales occur throughout Dakota during the spring and fall migrations, and the Lesser certainly, if not the Greater also, breeds in the northern part of the Territory.

This bird arrives at Fort Sisseton early in May (sometimes in April), and remains until October 28. During May and the early part of June it is very common; but from the latter time until near the end of July, but few are met with; but as fall comes on, its numbers increase, and from the 1st of September to the end of the season it is very abundant here. It breeds in this vicinity.

The specimen measures as follows:

No. 672, ♂, 20.50 × 10.96; wing 6.32; tail 2.50; tars. 2.25; m. t. & claw, 1.43; bill 1.53.

TRINGOIDES MACULARIUS, (L.) Gray.—*Spotted Sandpiper.*

Is found here in small numbers from about 1st of July to the 8th of September.

The specimen measures as follows:

No. 669, ♂, 13.00 × 8.10; wing 4.10; tail 2.30.

ACTITURUS BARTRAMIUS, (Wils.) Bp.—*Upland Plover.*

Sexes are alike in color.

Bill straight, about as long as the head, grooved ¾ of its length, the gape very deep, reaching nearly to below the eyes, the feathers extending on the upper bill beyond those on the lower, which do not fill the space between the forks of the lower jaw; tail very long, more than half the wing, graduated; legs much longer than middle toe and claw; legs bare nearly the length of the latter: length 11–13; wing 6–7; tail 3–4; bill 1–1½: above, blackish, with a slight greenish reflection, variegated with tawny and whitish; below, pale tawny, of varying shade, bleaching on throat and belly; lower throat with streaks; breast and sides with arrowheads and bars of blackish; armpits and lining of wings pure white, black-barred; quills blackish, with white bars on the inner webs; tail varied with tawny, black and white, chiefly in bars; bill and legs pale, former black-tipped.

North America; abundant; migratory; a highly esteemed game bird, usually found in flocks, in fields, not necessarily near water.

The Upland Plover is very abundant here from May 10 until near the end of August, and breeds nearly everywhere on the prairie. The bird is in good condition for the table from the time of its arrival, and is justly highly appreciated for its delicate flavor. About the middle of August, this Plover commences to congregate in large flocks, when it becomes quite shy, so that its capture is attended with considerable difficulty. Takes its departure about August 26.

TRYNGITES RUFESCENS, (V.) Cab.—*Buff-breasted Sandpiper.*

This strange Sandpiper is seen here a few times each year during the spring migration. On May 22, 1876, while out hunting on the open prairie, a flock containing thirty or forty passed near me, from which one was secured. Two or three others were taken later in the season, on as many different occasions. Of the habits of this bird I know nothing. I have only seen it in open country on the wing, and quick must be the sportsman who then brings it to bag, for it is a whiz-z-z, and the birds are gone.

NUMENIUS LONGIROSTRIS, Wils.—*Long-billed Curlew.*

Sexes are alike in color.

Bill of extreme length and curvature, measuring from 5 to 8 or 9 inches; total length about two feet; wing a foot or less; tail about 4 inches. Plumage very similar to that of the Godwit; prevailing tone rufous, of varying intensity in different birds, and on different parts of the same bird, usually more intense under the wing than elsewhere; below, the lower throat streaked and the breast and sides with arrowheads and bars of dusky; above, variegated with black, especially on the crown, back, and wing; tail barred throughout with black and rufous; middle quills rufous; outer quills blackish and rufous; no pure white anywhere; bill black, the under part flesh-colored for some distance; legs dark.

Occurs in many portions of Dakota and Montana.

NUMENIUS HUDSONIUS, Lath.—*Jack Curlew.*

Sexes are alike in color.

Bill medium, 3 or 4 inches long; length 16 to 18; wing 9; tail 3½. Plumage as in the last species in pattern, but general tone much paler; quills barred. Breeds in British America; United States, chiefly during the migrations.

I have never met with this bird in any part of Dakota or Montana.

NUMENIUS BOREALIS, (Forst.) Lath.—*Esquimaux Curlew.*

Sexes are alike in color.

Bill small, under 3 inches long; length 12–15 inches; wing under 9; tail 3. Plumage in tone and pattern almost exactly as in the last species, but averaging more rufous, especially under the wings, and outer quills not barred.

Occurs in parts of Dakota during the migrations.

ARDEIDÆ.

ARDEA HERODIAS, Linn.—*Great Blue Heron.*

Occurs regularly during the spring and fall migrations. It tarries but a few days in this vicinity in the spring time, but is observed in some numbers during September and October.

BUTORIDES VIRESCENS, (Linn.) Cab.—*Green Heron; Poke.*

Arrives the latter part of April or the beginning of May, and remains until October; breeds in the sloughs all over the Coteau, not, however, in any great numbers.

NYCTIARDEA GRISEA NÆVIA, (Bodd.) All.—*American Night Heron.*

Is seen here in considerable numbers from August 10 until October 25; is not seen during the spring migrations.

BOTAURUS MUGITANS, (Bartr.) Coues.—*American Bittern.*

Is found here from May 1 until October 1; is not at any time abundant; breeds here.

GRUIDÆ.

GRUS AMERICANA, (L.) Temm.—*White or Whooping Crane.*

Occurs only during the spring and fall migrations, and even then not in any numbers.

GRUS CANADENSIS, (L.) Temm.—*Brown Crane.*

Is much more frequently met with than the preceding, and a few remain and breed on the Coteau.

The Brown Crane can be very easily domesticated, and they make very docile pets, following a person about from place to place much the same as an antelope or deer would; they will take their night tramps, but are generally on hand the following morning.

RALLIDÆ.

PORZANA CAROLINA, (Linn.) Cab.—*Carolina Rail.*

Sexes are alike in color.

Above, olive-brown, varied with black, with numerous sharp, white streaks and specks; flanks, armpits, and lining of wings barred with white and blackish; belly whitish; under tail-coverts rufescent. Adult with the face and central line of throat black; the rest of the throat, line over eye, and especially the breast, more or less intensely slate-gray, the sides of the breast usually with some obsolete whitish barring and speckling; young without this black, the throat whitish, the breast brown. Length 8–9; wing 4–4½; tail about 2.

Occurs throughout a large portion of Dakota.

Is found at Fort Sisseton, in small numbers, from May 15 until October; breeds in the thick rushes around the margins of the lakes and sloughs.

The specimen measures as follows:

No. 681, ♂, 13.40×8.80; wing 4.25; tail 2.44; tarsus 1.30; middle toe and claw 1.75.

FULICA AMERICANA, Gm.—*American Coot; Mud Hen.*

Arrives about April 20 and remains until October 30; is moderately abundant during this time; breeds in the sloughs all over the Coteau.

ANATIDÆ.

CYGNUS BUCCINATOR, Rich.—*Trumpeter Swan.*

Is seen only during the migrations; in the spring, none stop in this vicinity. When passing south in the fall, I have observed a very few to loiter in the larger lakes.

ANSER HYPERBOREUS, Pall.—*Snow Goose; White Brant.*

Sexes are alike in color.

Bill smooth, the scales or plates very prominent, owing to arching of the edges of the bill. Adult plumage pure white, but in most specimens the head washed with rusty red; outer quills broadly black-tipped; bill lake-red, with white nail; feet the same, with dark claws. Length about 30; wing 17–19; tail 5½–6½; bill 2½.

About the 1st of April, this Goose commences to pass this region, and from then until the early part of May thousands are daily seen passing north; a very few remain and breed. About the middle of September it begins to return from the north, and by the 1st of October is very abundant, being found in flocks often containing several thousand old and young birds; finally departs at the end of October.

The specimen measures as follows:

No. 686, ♂, 59.00×29.00; wing 17.50; tail 6.25; tarsus 3.25; bill 2.40.

ANSER CŒRULESCENS, (L.) Vieill.—*Blue Goose.*

Sexes are alike in color.

With the size and exactly the form of the next species, but the plumage ashy, varied with dark brown; the head, upper neck, tail-coverts, and most of the under parts white; the wing-coverts silvery ash.

It is a singular fact that I have never observed this Goose during the spring migrations when the preceding one is so abundant, and with which it first makes its appearance here in the fall and is afterwards constantly found mixed with the flocks of that Goose, and associating with it on terms of such familiarity as to suggest to me the query whether there may not be a doubt as to its distinctness from a *hyperboreus*, and whether it may not in reality be the young of that Goose, or a semi-melanotic condition thereof. I have seen flocks of a *hyperboreus* covering acres of ground, with here and there a Blue Goose scattered apparently indiscriminately through the flock. I have also seen them associated on the wing. The case of this Goose and that of the Black-bellied Plover constitute the only exceptions falling under my notice of a migratory bird appearing in the fall that does not pass this region during the spring migrations. This Goose departs with the preceding about the end of October.

BRANTA CANADENSIS, (L.) Gary.—*Canada Goose; Common Wild Goose.*

Sexes are alike in color.

Tail normally 18-feathered. Grayish-brown, below paler or whitish-gray, bleaching on the under tail-coverts, all the feathers with lighter edges; head and neck black, with a broad white patch on the throat mounting each side of the head; tail black, with white upper coverts; bill and feet black. About 36 inches long; wing 18–20; tail 6½–7½; bill 1¾–2.

Passes this region from the 1st to the 30th of April in large numbers; it loiters but a few days at this season (a very few may breed near the head of the Coteau). Returns about the 15th of September, after which date it is very abundant until its final departure for the season, usually about October 31.

ANAS BOSCHAS, Linn.—*Mallard.*

Sexes are not alike in color.

This Duck and the seven next described are known as the "River Ducks," and are distinguished from the "Sea Ducks" by having the hind toe *simple.*

♂ with the head and upper neck glossy green, succeeded by a white ring; breast purplish-chestnut; tail-feathers mostly whitish; greater wing-coverts tipped with black and white, the middle quills with a violet marking, black-bordered; bill greenish-yellow; feet orange-red. ♀ with the wing as in the ♂; head, neck, and under parts pale ochrey, speckled and streaked with dusky. Length about 24; wing 10–12.

This Duck appears to enter this region about April 16, and remains until October 30; breeds sparingly in the sloughs; at first, the Mallard is not near as abundant as some of the other Ducks are, but as fall approaches it becomes very common.

DAFILA ACUTA, (L.) Jenyns.—*Pintail; Sprigtail.*

Sexes are not alike in color.

Tail with the middle feathers longest (female and young shorter and not so narrow), 4 to 9 inches long; wing 11; total length about 24. Bill black and blue; feet grayish-blue; head and upper neck dark brown, with green and purple gloss; sides of neck with a long white stripe; lower neck and under parts white; dorsal line of neck black, passing into the gray of the back, which, like the sides, is vermiculated with black; middle quill-markings greenish-purple, anteriorly bordered by buff tips of the greater coverts, elsewhere by black and white; inner quills and shoulders black and silvery. ♀ and young with the whole head and neck speckled or finely streaked with dark brown and grayish or yellowish-brown; below, dusky-freckled; above, blackish, all the feathers pale-edged; only a trace of the greenish markings between the white or whitish tips of the greater coverts and middle quills.

This Duck arrives April 8, and remains until October 22; breeds in small numbers in this vicinity. In the early spring, as also during September and October, it is very abundant, but during the summer only a few Pintails are seen here.

CHAULELASMUS STREPERUS, (L.) Gray.—*Gadwall; Gray Duck.*

Sexes are not alike in color.

♂ with most of the plumage barred or half-ringed with black and white or whitish; middle wing-coverts chestnut; greater coverts black; marking of middle quills white; ♀ known by these wing-marks: 19–22; wing 10–11.

Is seen here from April 8 until October 22, in large numbers; breeds here.

MARECA AMERICANA, (Gm.) Steph.—*American Widgeon; Baldpate.*

Sexes are not alike in color.

Head and neck grayish, dusky-speckled; top of head white (in full plumage), its sides with a broad green patch. Bill shorter than head, grayish-blue like the feet; fore breast light brownish-red; belly pure white; under tail-coverts abruptly black, middle and greater coverts white, the latter black-tipped; middle quill-markings green, black-bordered: 20–22; wing 11; tail 5; bill 1⅓–1½. ♀ known by the wing-markings.

Enters this region about April 22, and the greater majority pass, in a few days, further north; it is probable, however, that a very few breed in this vicinity, as I have taken this Duck on several occasions during the summer months; about the 1st of September, it begins to return from the north, and by the middle of the month is very abundant; finally departs October 30.

The specimen measures as follows:

No. 668, ♂, 33.75 × 20.50; wing 10.40; tail 5.00.

QUERQUEDULA CAROLINENSIS, (Gm.) Steph.—*Green-winged Teal.*

Sexes are not alike in color.

Subcrested; head and upper neck chestnut, with a broad glossy green band on each side, whitish-bordered, uniting and blackening on back of neck; under parts white, the fore breast with circular black spots; upper parts and flanks closely waved with blackish and white; under tail-coverts black, varied with white or creamy; bill black; feet gray. A conspicuous white crescent on the side of the body just in front of the bend of the wing; shoulders plain; middle quill-marking rich green. No blue on the wings. ♀ differs especially in the head-markings, but those of the wings are the same. Small: 14–15; wing 7¼; tail 3½; bill 1½.

Arrives April 24, and remains a few days in this vicinity before passing north for the summer; returns early in August in large numbers and remains until September 30.

QUERQUEDULA DISCORS, (L.) Steph.—*Blue-winged Teal.*

Sexes are not alike in color.

Wing-coverts in both sexes sky-blue, the greater white-tipped; middle quill-markings green, white-tipped; armpits and most under wing-coverts white; shoulders striped with tawny and blue (not in the ♀) or dark green; fore breast barred; rump and tail dark, plain; under tail-coverts dark or black; bill black; feet not dark. Head and neck of ♂ blackish-plumbeous, darkest on the crown, usually with purplish iridescence, a white crescent in front of the eye; under parts thickly dark-spotted; ♀ with head and neck altogether different; under parts much paler and obscurely spotted, but known by the wing-markings from any species here treated of, but difficult to distinguish from the ♀ of the species known as the "Cinnamon" Teal: 15–16; wing 7; tail 3; bill 1½–1¾.

Arrives about the 1st of May, but, like all the migratory birds, it varies with the season, being sometimes as early as the 1st of April, but is seldom later than the middle of May; is very common, and breeds in all the sloughs over the Coteau; takes its departure about October 10.

SPATULA CLYPEATA, (L.) Boie.—*Shoveller; Spoon-bill Duck.*

Sexes are not alike in color.

Bill twice as wide at the end as at the base, with very numerous and prominent plates. Head and neck of ♂ green; fore breast white; belly purplish chestnut; wing-coverts blue; middle quill-marking green, bordered with black and white; some shoulders blue, others green, all white-striped; bill blackish; feet red. ♀ known by bill and wings. 20; wing 9½; bill 2½–2¾.

This Duck is very abundant in all the lakes and sloughs on the "Coteau des Prairies" from April 18 until October 30; breeds throughout its range.

The specimen measures as follows:

No. 682, ♀, 27.25 × 17.75; wing 8.60; tail 3.50.

AIX SPONSA, (L.) Boie.—*Summer Duck; Wood Duck.*

Sexes are not alike in color.

Crested; head iridescent green and purple, with parallel-curved white stripes over and back of eyes, and a broad, forked, white throat-patch; ♀ with the head mostly gray: 18–20; wing 8½–9½; tail 4½–5; bill 1⅛. Nests in trees.

A single specimen of this beautiful Duck was killed near the post in the summer of 1874 by Captain Pearson of the Seventeenth Infantry. This is the only Wood Duck I have seen among the many thousands annually killed at this post.

FULIGULA MARILA, (L.) Steph.—*Greater Scaup Duck; Big Blackhead.*

Sexes are not alike in color.

This and the following described Ducks belong to the subfamily *Fuligulinæ* (Sea Ducks), and are distinguished generally from the preceding by having the hind toe with a membranous flap depending therefrom, larger feet, shorter legs, &c. ♂ with the head, neck, and body anteriorly, black, the former glossy-green; lower neck, rump, tail and its coverts, blackish; below, white, with fine black waving on the sides and lower belly; bill dull blue with black nail; legs plumbeous; middle quill-marking white. ♀ with the head and anterior parts brown, with the face pure white or not, and other black parts of the ♂ rather brown, the black and white vermiculation less distinct. About 20 inches long; wing 9.

Arrives April 19, and resting a few days resumes its long northern flight. Returns about the 1st of October in some numbers, and finally disappears, for the season, October 31.

The specimen measures as follows:

No. 653, ♀, 29.00 × 18.00.

FULIGULA AFFINIS, Eyton.—*Lesser Scaup Duck; Little Blackhead.*

Sexes are not alike in color.

Extremely similar to the last: smaller, about 16; wing 8; gloss of head chiefly purple. ♀ as in the last species. It is very difficult to define this bird specifically, and it may be simply a small southern form; but it appears to preserve its characters, although constantly associated with the last.

For my own part, I am inclined to keep the two separate; for, as I have observed it, the Little Blackhead maintains its characters under all circumstances: I have seen it associated with the Greater in feeding, but when disturbed and put to flight the two species will be found separate.

Arrives about the same time and follows the same course as the preceding species does; is much more abundant, however, during October than that Duck is.

The specimen measures as follows:

No. 627, ♂, 27.75 × 17.00; wing 8.00; tarsus 1.47; bill 1.60.

FULIGULA FERINA AMERICANA, (Eyton) Coues.—*American Pochard; Redhead.*

Sexes are not alike in color.

Bill dull blue, with a black belt at the end, broad and depressed, shorter than head (2 or less), the nostrils within its basal half; color of head rich pure chestnut, with bronzy or red reflection, of back, mixed silvery-gray and black in about equal amount, the dark waved lines unbroken; body anteriorly, rump, and tail-coverts black. ♀ head and neck pale brown; body darker brown, with other markings of the back, sides, and shoulders less distinct than the ♂; middle quills bluish-ash. Length about 20; wing 9–10.

Arrives about April 15 and remains until October 30; breeds in considerable numbers in the deeper sloughs on the "Coteau des Prairies," at first not very abundant; it begins to receive accessions to its numbers from further north about the middle of September, and by the 1st of October large flocks of the Redheads are common; finally departs for the season about October 31.

The specimen measures as follows:

No. 635, ♂, 30.50 × 19.50; wing 9.50; tail 3.00; tars. 1.55; m. t. & claw 2.80; bill 1.95.

FULIGULA VALLISNERIA, (Wils.) Steph.—*Canvas-back Duck.*

Sexes are not alike in color.

Bill blackish, high at the base and narrow throughout, not shorter than head (2½ or more), the nostrils at its middle; head much obscured with dusky; black waved lines of the back sparse and much broken up into dots, the whitish thus predominating; ♀ varies as in the last species.

Many persons experience difficulty in distinguishing between the Redhead and Canvas-back Ducks; careful attention to the foregoing descriptions will enable any person to identify all his specimens, with possibly the exception of some immature ♀ specimens; but as the two species are seen in Dakota, instances of this will be very rare indeed.

This Duck arrives about April 15, and I think it probable that a very few remain in this vicinity and breed, but the greater majority continue their northern flight with little more than a passing notice of this region at this season; returns in the early part of September and gradually increases in numbers until the middle of October; takes its final departure for the year about October 30.

The specimen measures as follows:

No. 676, ♀, 31.00 × 20.75; wing 9.10; tail 3.00.

BUCEPHALA CLANGULA, (L.) Coues.—*Golden-eye.*

Sexes are not alike in color.

♂ with the head and upper neck glossy dark green, and a white oval or rounded spot between the bill and eye, not touching the base of the bill throughout; white continuous on outer surface of wing; bill very high at base, black with pale or yellow end, and nostrils in anterior half; feet orange; webs dusky; eyes yellow; head uniformly puffy; lower neck all around, under parts including sides, most of the shoulders, wing-coverts, and middle quills white; lining of wings and armpits dark; most of upper parts black; no waving on back and sides. ♀ head less puffy, snuffy brown, no white patch in front of eye, and less white on the wings. Length 16–19; wing 8.

Arrives about April 15 and soon passes on to the north. About October 1 returns in considerable numbers, and remains until October 30.

BUCEPHALA ISLANDICA, (Gm.) Bd.—*Barrow's Golden-eye.*

Sexes are not alike in color.

Very similar to the last species; gloss of head purplish and violet, the spot between the bill and eye larger, triangular or crescentic, applied against the whole side of the bill at base; white on surface of wing divided by a dark bar: rather larger than the last; 19–22; wing 9–10; feathers at back of head lengthened into a slight crest; bill shorter. ♀ probably not distinguishable with certainty from that of the foregoing, unless by the dark bar on the wing.

Is seen here only during the spring migrations. Arrives about April 15 and remains for a few days; several specimens have been taken at this time. Does not appear to pass this region during the fall.

The specimen measures as follows:

No. 652, ♀, 27.50 × 17.00.

BUCEPHALA ALBEOLA, (L.) Bd.—*Buffle-head Duck.*

Sexes are not alike in color.

♂ with the head particularly puffy, of varied rich iridescence, with a large white ear-patch, confluent with its fellow on the nape: small, 14–16; wing 7–8; bill 1, with nostrils in basal half. ♀ still smaller, an insignificant-looking Duck, with head scarcely puffy, dark gray, with traces of the white ear-patch.

Arrives April 9 and in a few days departs; returns about the middle of September to remain until October 22. During the fall is quite common, but is not seen in any large numbers in the spring.

The specimen measures as follows:

No. 687, ♂, 23.25 × 14.50; wing 7.00.

ERISMATURA RUBIDA, (Wils.) Bp.—*Ruddy Duck.*

Sexes are not alike in color.

Remarkably distinguished from the other Sea Ducks (with the exception of the St. Domingo Duck) by the stiffened, narrow, tapering tail-feathers (16–20 in number), exposed to the base by reason of extreme shortness of the coverts; bill broad, flattened, the nail large, overhanging. The ♂ in perfect plumage, with the neck all round and the upper parts brownish-red, the lower parts silky silvery-white watered with dusky, the chin and sides of the head dead white, the crown and nape black, but not often seen in this condition in the United States as generally observed, and the ♀ at all times brown above, finely dotted and waved with dusky, paler and duller below, with darker undulations and sometimes a slight tawny tinge, as also occurs on the sides of the head; crown and nape dark brown; bill dusky; under tail-coverts always white. Length 14–17; wing 5–6.

A few specimens of this Duck in full plumage have been taken here during June. It is, however, rare, occurring only during the spring migrations.

The specimen measures as follows:

No. 662, ♂, 20.00 × 15.25.

MERGUS MERGANSER, Linn.—*Fishing Duck.*

At any time from April 10 until October 30, this Duck can be seen in the lakes and sloughs on the "Coteau des Prairies" in numbers.

The flesh of this and the following Duck are not fit for the table, as they feed to a great extent on fish.

MERGUS CUCULLATUS, Linn.—*Hooded Merganser.*

Is seen for about a week from April 10, and then passes further north to return about October 1 in small numbers; disappears October 30.

The specimen measures as follows:

No. 632, ♀, 25.00 × 18.00.

PELECANIDÆ.

PELECANUS TRACHYRHYNCHUS, Lath.— *White Pelican.*

Arrives April 20, and the greater majority pass north, but quite a number spend the summer here. During the fall migrations it again becomes quite common; finally departs for the season October 30.

PHALACROCORACIDÆ.

GRACULUS DILOPHUS, (Sw.) Gray.—*Double-crested Cormorant.*

Is found in the larger lakes in this vicinity from April 18 until October 30, in considerable numbers; breeds here.

LARIDÆ.

LARUS ARGENTATUS SMITHSONIANUS, Coues.—*American Herring Gull.*

Arrives about the 8th of April, to remain until October 30; is common and breeds here.

The specimens measure as follows:

No. 611, ♀, 51.25×20.75; wing 15.00; tail 6.25. Stomach loaded with worms.

No. 631, ♀, 50.50×21.08; wing 15.00; tail 6.00.

LARUS ATRICILLA, Linn.—*Laughing Gull.*

Is found in this region from April 8 until October 30, in large numbers; breeds here.

The specimen measures as follows:

No. 622, ♂, 35.30×15.50; wing 11.50; tail 4.61; bill 1.27, at base 0.40, at gonys 0.34; tarsus 1.76.

LARUS FRANKLINI, Rich.—*Franklin's Rosy Gull.*

Arrives April 8, and remains until the lakes in this vicinity close, which generally occurs by the end of October; is common, but not quite so abundant as the preceding species.

STERNA FORSTERI, Nutt.—*Forster's Tern.*

Arrives April 20, and remains until October 1; very common and breeds here.

STERNA HIRUNDO, Auct.—*Common Tern.*

Is found here in large numbers from April 20 until about the 1st of October; breeds here. Is ever on the wing hovering over the lakes in search of its food.

The specimens measure as follows:

No. 623, ♀, 29.25×15.25; wing 10.75; tail 7.20; tarsus 0.97; bill 1.39, at base 0.43, at gonys 0.43.

No. 624, ♂, 29.50 × 15.50; wing 10.75; tail 7.25; tarsus 0.93; bill 1.53, at base 0.42, at gonys 0.42.

HYDROCHELIDON LARIFORMIS, (L.) Coues.—*Black Tern.*

Is very common from April 20 until the beginning of October, about which time it departs south. Breeds here.

The specimen measures as follows:

No. 636, ♂, 23.00×9.75; wing 8.50; tail 3.17; tars. 0.65; m. t. & claw 0.95; bill 1.05.

COLYMBIDÆ.

COLYMBUS TORQUATUS, Brünn.—*Great Northern Loon.*

The Great Northern Loon or Diver passes north in the early spring. A very few remain in this vicinity during the period the lakes are open, but the great majority pass on, and, returning October 1, are then seen in large numbers until October 30.

PODICIPIDÆ.

ÆCHMOPHORUS OCCIDENTALIS, (Lawr.) Coues.—*Western Grebe.*

Is occasionally seen during the migrations, but not in any numbers. I have secured but a single specimen of this Grebe, as its flight is generally at a considerable height.

PODILYMBUS PODICEPS, (L.) Lawr.—*Pied-billed Grebe.*

Arrives about May 1, and remains until October 27; is common in all the smaller lakes, which it seems to prefer, and it breeds in the tall grass surrounding them. This Grebe is certainly one of the clumsiest birds on the wing with which I am acquainted, appearing incapable of sustaining any prolonged flight, so much so, indeed, as to be a matter of surprise how it ever makes its extended migrations. The Indians do not believe this bird ever leaves any locality, stating that, as cold weather comes on and the lakes freeze over, this Grebe is transformed into a muskrat, and in that state passes the winter, returning to his Grebe condition when spring returns.

Recapitulation of Species Treated.

Family.	No. of species.	Family.	No. of species.
Turdidæ	4	Cathartidæ	1
Saxicolidæ	1	Columbidæ	2
Paridæ	1	Tetraonidæ	6
Troglodytidæ	2	Charadriidæ	4
Alaudidæ	1	Hæmatopidæ	1
Sylvicolidæ	12	Recurvirostridæ	1
Hirundinidæ	5	Phalaropodidæ	1
Vireonidæ	2	Scolopacidæ	19
Laniidæ	1	Ardeidæ	4
Fringillidæ	17	Gruidæ	2
Icteridæ	8	Rallidæ	2
Corvidæ	3	Anatidæ	22
Tyrannidæ	3	Pelicanidæ	1
Caprimulgidæ	1	Phalacrocoracidæ	1
Trochilidæ	1	Laridæ	6
Cuculidæ	1	Columbidæ	1
Picidæ	3	Podicipidæ	2
Stringidæ	2		
Falconidæ	11	Total	155

NOTE.—Information received from Dr. McChesney since the foregoing article was prepared, enables me to add two species to the list, namely:

PINICOLA ENUCLEATOR, (L.) V., and
ÆGIOTHUS LINARIA, (L.) Cab.,

thus raising the number of *Fringillidæ* to 19, and the total to 157.—E. C.

Art. V.—Paleontological Papers No. 9: Fossils of the Jura-Trias of Southeastern Idaho.

By C. A. White, M. D.

In Southeastern Idaho and the adjacent portion of Wyoming, numerous exposures of strata are reported by the field-geologists, which are, or are assumed to be, equivalent with those which, in the Western Territories, have, by common consent, been assigned to the Jurassic period, or, more recently, they have received the designation of Jura-Trias, in consequence of the growing opinion that no paleontological plane of demarkation exists among those strata of the Western Territories which have hitherto been assigned respectively to the Jurassic and Triassic periods. At a part of the localities above mentioned, some species of fossils occur which have for many years been especially assigned to the Jurassic, but those particular species do not occur with other fossils at some of the other localities. The species referred to are, for example, *Pentacrinus asteriscus* Meek and Hayden, *Belemnites densus* M. & H., *Eumicrotis curta* Hall, *Camptonectes bellistriatus* M. & H., &c. At others of the localities above referred to, notably those which are especially considered in the following paragraphs, the fossils are mostly or entirely of new species.

Among the exposures of Jura-Trias strata in the district here indicated (and they are numerous and comparatively small in consequence of the great disturbance which they, together with their associated strata, have suffered), there are three localities which are especially interesting, because the strata there exposed contain not only a number of new forms, but because some of the types in which those forms are expressed are such as in Europe are regarded as characteristic of the Trias. For convenience of reference, these localities are designated as Nos. 1, 2, and 3.

Locality No. 1 is in Idaho, about sixty-five miles north of the boundary line between that Territory and Utah, about eighteen miles west of the boundary line between Idaho and Wyoming, and about five miles south of John Gray's lake. The region embracing this and neighboring localities has not yet been visited by myself, but Dr. A. C. Peale, geologist of one of the surveying parties, in whose district for 1877 the locality especially referred to occurs, has examined it briefly, and furnishes the data for the following section at locality No. 1, the member A being the highest of the series.

The strata at this locality have been much displaced, the dip being to the southwestward and at an angle of about 55°. At the southern portion of the exposures of the strata of this locality, however, the strike curves to the eastward, so that the dip is then to the southward and the angle lessened; but the details of this subject will be embraced in Dr. Peale's final report, and also briefly in Art. VI, pp. 119–123.

Section at Locality No. 1.

A.—Alternating limestones and arenaceous shales; outcrops obscure. The following fossils were obtained from near the top of this member: *Terebratula semisimplex* White, *T. augusta* Hall and Whitfield, *Aviculopecten idahoensis* Meek, *Gervillia* ———?, and an undetermined Conchifer.	1,000 feet.
B.—Limestones; outcrops somewhat obscure. The fossils are: *Eumicrotis curta* Hall and *Aviculopecten idahoensis* Meek.	
C.—Greenish and reddish fossiliferous sandstones, followed by arenaceous shales and limestones. The fossils are: *Aviculopecten pealei* White and three or four undetermined species of Conchifers.	850 feet.
D.—Bluish-gray limestones, with fossils near their base. The fossils are: *Meekoceras gracilitatis* White, *M. mushbachanus* W., *Arcestes? cirratus* W., *Arcestes?* ———?, *Arcestes?* (another species), and *Eumicrotis curta* Hall.	700 feet.
E.—Reddish and greenish laminated sandstones	400 feet.
F.—Very dark blue limestone	800 feet.
G.—White quartzite	
H.—Massive grayish-blue limestones	400 feet.

At locality No. 2, which is about fifteen miles a little east of south from locality No. 1, occurs another limited exposure of limestone strata, which are equivalent in part with those of locality No. 1, and which there occupy a synclinal axis. From these strata, *Meekoceras aplanatum* White and *M. gracilitatis* W. were obtained. The presence there of the latter species indicates the equivalency of those strata with member D of the foregoing section, because numerous examples of that species were obtained from that member of the section.

About the same distance as before (15 miles), almost due west from locality No. 1, is locality No. 3, the strata being calcareous sandstones. From these strata, Dr. Peale brings *Aviculopecten idahoensis* Meek and *A. altus* White, examples of the former species being somewhat abundant. This species occurs in both A and B of the foregoing section, with which members the strata of locality No. 3 are doubtless equivalent. Mr. Meek's types of this species, which he referred to the Jurassic, were obtained several years ago by Dr. Peale in Lincoln Valley, near Fort Hall, about fifty miles northwestward from locality No. 1. So far as I am aware, the species has not been discovered elsewhere, and it may therefore be regarded as a common associate of the Cephalopods herein described.

The relations of the strata of the three localities here discussed with those which precede and follow them in natural order have not been so completely studied as could be desired, but Dr. Peale regards members F, G, and H of the foregoing section as of Carboniferous age, although he did not obtain any fossils from either of those three lower members at that locality, and he also thinks the horizon of these fossiliferous beds is beneath the so-called Red Beds. The fossiliferous strata of the three localities herein especially considered contain all the new fossil forms which are described in this paper, together with the three following identified species, namely, *Terebratula augusta* Hall and Whitfield, *Aviculopecten idahoensis* Meek, and *Eumicrotis curta* Hall. No other species besides these and the eight new ones, and no other localities except the three specially designated in foregoing paragraphs, will be considered in the present paper, but it is intended that these strata, together with their equivalents and associates in that region, shall be carefully studied at the earliest opportunity. One object in presenting these few species only in the present paper, is, that they embrace all the forms which are now known to be associated with these interesting Cephalopods of Triassic type.

From our present knowledge of the subject, it seems that the strata containing the fossils herein described and noticed belong at or near the base of the series which in the Western Territories has latterly been generally designated as the Jura-Trias, but it is noticeable that the Red Beds, which have been so generally assigned to the Trias, are wanting here, although Dr. Peale now thinks they are present not many miles away, and, as before said, that they occupy an immediately succeeding horizon. It is probable that we may yet find satisfactory data for separating the strata which carry the fossils described and noticed in this paper, together with their equivalent strata elsewhere, as distinctively Triassic, from the other strata which have been so generally regarded as representing the Jurassic of Europe; but until more detailed studies can be made, I prefer to use for all of them the provisional designation of Jura-Trias. It is worthy of observation in this connection that none of the well-known species which have been generally regarded as certainly of Jurassic age, except *Eumicrotis curta*, occur associated with any of the fossils embraced in this paper. It seems evident from Dr. Peale's observations that those well known Jurassic species occupy a higher horizon; and it also seems evident, from the frequent mention which *E. curta* has received from the various geologists of the Western surveys and explorations, that this species has a wide geographical and great vertical range; and, furthermore, that it is associated with both Jurassic and Triassic types. It should also be remarked that the *Terebratula*, here identified, not without some doubt, as *T. augusta* Hall and Whitfield, is referred by those authors to the Jurassic.

According to European standards, the Cephalopods here described are unquestionably of Triassic types, and, as pointed out by Professor Hyatt in following remarks, they have more resemblance to certain Cephalopods of the Muschelkalk of Europe than to any other. This is an interesting and somewhat unexpected circumstance, since the only other

Cephalopod forms from strata of the Western Territories which have been assigned to the Trias as distinct from the Jura have been regarded as especially representing the horizon of the St. Cassian, Aussee, and Hallstadt deposits of Europe. The fossils referred to are those which were obtained from the West Humboldt Range, Nevada, and described by Gabb in Vol. I of the Paleontology of California, and by Meek and Hyatt in Vol. IV of the United States Geological Survey of the Fortieth Parallel.

Having recognized the unique character and Triassic type of these Cephalopods, and the fact that, although closely related to typical *Ceratites*, they presented some important generic modifications, I desired the opinion of Prof. Alpheus Hyatt, whose excellent and exhaustive labors upon this class of fossils are so well known. I therefore forwarded them to him for examination, and have received from him the notes which, on the following pages, appear in quotation-marks above his initials. Professor Hyatt proposes one new genus, which has not only important and significant relations with other genera, but the fact is an interesting one that with its first and only discovery three strictly conforming, but well-differentiated species, were found associated together, indicating thereby the permanent establishment of that generic form.

BRACHIOPODA.

Genus TEREBRATULA Llhwyd.

TEREBRATULA SEMISIMPLEX White.—Shell small, obovate or subelliptical in marginal outline; width less than the length; cardinal slopes gently convex or faintly angular; margins of the shell obtuse; both valves somewhat regularly and nearly equally convex; beak of ventral valve moderately prominent, with the usual curvature over that of the ventral valve, and with the usual apical perforation. Shell-structure minutely punctate. Surface of both valves marked by numerous small radiating plications, sometimes slightly irregular in size, with about equally wide spaces between. These plications never reach the beaks, and sometimes extend only a short distance from the margins; the remainder of the surface being plain, or marked only by faint lines of growth.

Length, 14 millimeters; breadth, 11 millimeters; thickness, 9 millimeters.

The form and more especially the plications of this shell give it the appearance of a *Rhynchonella*, but its punctate structure forbids its reference to that genus. Perhaps it is really a *Waldheimia;* but as the internal structure is not yet known, it is at present referred to *Terebratula*.

Position and locality.—Jura-Trias strata, member A of the foregoing section; at locality No. 1, Southeastern Idaho. Collected by Dr. A. C. Peale.

TEREBRATULA AUGUSTA, Hall and Whitfield.—Among the collections made at locality No. 1 there are several examples of another species of *Terebratula* which were obtained from member A of the foregoing section, the same member from which *T. semisimplex* was obtained, but it comes from a different, although near layer. These possibly belong to a new species, but they answer too closely to the figures and description of *T. augusta*, as given by Hall and Whitfield in Vol. IV of the United States Geological Survey of the Fortieth Parallel, to make it advisable at present to propose a new name. The original locality of *T. augusta* is at Shoshone Springs, Augusta Mountains, Nevada; and the strata from which it comes are assigned to the Jurassic in the reports just cited. Collected by Dr. A. C. Peale.

CONCHIFERA.

Genus AVICULOPECTEN McCoy.

AVICULOPECTEN PEALEI White.—Shell, exclusive of the ears, subovate in marginal outline; obliquity of the axis to the hinge-line backward, and forming with it an angle of about 70 degrees; hinge-margin not quite as long as the greatest transverse diameter of the body of the shell. Left valve moderately convex, the convexity being nearly uniform, except in the umbonal region, where it is, as usual, greatest; beak moderately prominent, incurved, and elevated slightly above the hinge-margin; anterior ear moderately large, prominent, extending as far forward as the front margin of the shell, distinct from the body of the shell, but not separated from it by a distinct auricular furrow; its antero-inferior border convex, sloping backward to a moderately deep, angular, byssal notch; front margin of the valve regularly convex; antero-basal margin convex, but not quite so much so as the front; postero-basal margin somewhat abruptly rounded up to the nearly straight posterior margin. Posterior ear moderately large, but not quite so prominent as the anterior ear, moderately distinct from the body of the shell, its posterior margin forming nearly a right angle with the hinge-margin, and a very obtuse one with the posterior margin of the body of the shell. Surface marked by numerous raised radiating lines and small costæ, the latter being less numerous than the former, and differing from them only in being larger, all of them being slightly undulating in their direction from the umbo toward the margin. Near the margins three or four of the lines occupy each of the spaces between the costæ. Both ears are marked by radiating raised lines similar to those on the body of the shell, but they are more numerous and finer on the posterior ear than on the anterior. Crossing these radiating lines and costæ, there are numerous fine, but distinct, concentric lines, and some larger wrinkles of growth. Right valve unknown.

Height from base to beak, 37 millimeters; antero-posterior diameter of the body of the shell, 33 millimeters; length of hinge-margin, 28 millimeters.

Position and locality.—Jura-Trias strata, member C of the foregoing section; Southeastern Idaho. Collected by Dr. A. C. Peale.

Aviculopecten altus White.—Shell, exclusive of the ears, subovate in marginal outline; axis almost perpendicular to the hinge-margin, or having a very slight backward obliquity; hinge-margin shorter than the greatest transverse diameter of the body of the shell. Right valve depressed-convex, the convexity being nearly uniform in all parts, except the umbonal region, where it is, as usual, greatest; beak small, moderately narrow, pointed, and projecting very slightly above the hinge-margin; anterior ear moderately large, its anterior point extending about as far forward as the front of the shell, not very distinctly separated from the body of the shell, its anterior border broadly and not deeply notched; front margin nearly straight from the shallow notch of the anterior ear to a point a little below the mid-height of the shell, from which point the margin is rounded with considerable regularity to the posterior side; from that side the margin is a little more abruptly rounded to the base of the posterior ear, the outer margin of which forms nearly a right angle with the hinge-margin. Posterior ear small, distinct from the body of the shell, but not separated from it by an auricular furrow. Surface marked by numerous radiating raised lines and costæ, which are irregularly undulating in their direction, the latter being more numerous than the lines, the two differing from each other only in size. The surface of the anterior ear is faintly marked by numerous fine radiating raised lines, but the surface of the posterior ear is apparently unmarked except by fine lines of growth. Crossing these radiate markings, there are concentric lines and wrinkles of growth. Left valve unknown.

Height from base to beak, 55 millimeters; antero-posterior diameter, 43 millimeters; length of hinge-margin, 28 millimeters.

This species bears considerable resemblance to the one just before described; but it differs from it in its much greater proportionate height, its almost perpendicular axis, its shorter hinge-margin, smaller posterior ear, and in having the heavier radiating lines or costæ more numerous in proportion to the smaller lines.

Position and locality.—Jura-Trias strata; locality No. 3 of the introductory portion of this paper, Southeastern Idaho. Collected by Dr. A. C. Peale.

Aviculopecten idahoensis, Meek.—Associated with the species last described; and also from members A and B of the section at locality No. 1, a number of examples of *A. idahoensis* were obtained. The type-specimens of this species, as before stated, were obtained at a locality in Lincoln Valley, about 50 miles northwestward from locality No. 1. Meek's description of it is in Ann. Rep. U. S. Geol. Surv. Terr. for 1871, p. 374.

This species and the two herein described as new much resemble each other in their surface-markings, and are evidently all strictly congeneric; but it is probable, as Meek has suggested in relation to *A. idahoensis*, that neither of them will be found to conform strictly with the typical examples of *Aviculopecten*. Their reference to that genus is therefore to be regarded as provisional only in this instance.

CEPHALOPODA.

Five species of Cephalopods, and perhaps six, are represented among the collections brought in from localities No. 1 and No. 2, three of which belong to the genus here proposed by Professor Hyatt, and the others probably to *Arcestes*. The following are Professor Hyatt's diagnostic remarks upon the proposed new genus.

Genus MEEKOCERAS* Hyatt.

"These species, so far as they go, are unlike the *Ceratites* of any foreign locality, but have more resemblance to the Muschelkalk than to the St. Cassian or Hallstadt faunas. They possess in common one characteristic which separates every species from the typical forms of European *Ceratites*. There are but three distinct lateral cells and two lateral lobes besides the finer auxiliary lobes and cells. This occurs in the most involute species—"C" [*M. gracilitatis*], as well as in the least involute—"A" [*M. aplanatum*]. This characteristic would be of no small value in any group, but in this one it is unusually constant in spite of the great differences of form and the variations in breadth of the sides of the whorls between the different species. The typical *Ceratites*, the *C. nodosus* and *C. semipartitus*, have at least four distinct lateral cells and lobes besides the auxiliary ones, and the distinction is slight between the two series. In this genus, on the contrary, the auxiliary series, when present, is not divided from the third lateral cell by a distinct lobe as in *Ceratites*, and the aspect of the third lateral cell is often like that of a *Goniatites*. The auxiliary series is of course not present in the less involute and narrower sided forms, such as "A" [*M. aplanatum*], and *Amm. parcus*, *Amm. boydianus*, and *Amm. ottonis*, as figured by von Buch; and *Ceratites carbonarius* Waagen. These and the *Goniatites lævidorsatus* Gabb (which I have in Meek's report on the Paleontology of the Geol. Expl. 40th Parallel erroneously referred to *Clydonites*) are quite distinct, but the adult sutures of the latter are not known and its position is therefore uncertain.

"The compressed whorls of all the species is of course a characteristic which is obvious when they are contrasted with typical *Ceratites*, as is also the absence, or merely transient appearance, of heavy nodes and ribs, except perhaps in the least involute species, if *lævidorsatus* be found to belong to this genus. The young shells appear to be quite distinct from the young shells of the true *Ceratites* so far as these have been compared, though no exact observations could be made for want of good specimens of the young of true *Ceratites*."—(A. H.)

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* "Dedicated to the memory of my friend F. B. Meek as some slight testimony of my respect for his works and regret for his loss."—(A. H.)

MEEKOCERAS APLANATUM White.—Shell compressed-discoidal, having the peripheral or siphonal side of the outer volution flattened, that of the inner volutions being a little rounded, and although narrow, its breadth is considerable as compared with the slight transverse diameter of the volutions; umbilicus open, shallow, its width in the adult being about equal to that of the greatest vertical diameter of the outer volution, but it appears to have been proportionally wider in young examples; volutions flattened-convex on their sides, but their inner edges are abruptly rounded inward to meet the next volution; all the volutions slightly embracing, the inner ones apparently more slightly than the outer. Siphonal cell of the septa, near the outer portion of the largest example obtained, small; the outer, middle, and inner lateral cells larger, regularly and plainly rounded and of about equal size; the outer lateral lobe of about the same size as the lateral cells, bearing at its rounded extremity five or six small digitations of uniform size; inner lateral lobe smaller than the outer, bearing about four digitations like those of the outer one; ventral lobe very small, about equal in size with the ventral or siphonal cell, and apparently simply notched at the end; no auxiliary lobes or cells apparent in the examples yet discovered. Surface of the outer volution nearly plain, but the sides of the small inner volutions marked by moderately distinct transverse ridges.

Diameter of the coil of the largest example in the collection, 60 millimeters; extreme vertical diameter of the outer volution, 22 millimeters; tranverse diameter of the same, 12 millimeters.

Position and locality.—Jura-Trias strata; locality No. 2 of the preceding pages, Southeastern Idaho. Collected by Dr. A. C. Peale.

Professor Hyatt makes the following remarks upon this species:

"This species belongs to that group of this genus in which the shells have but a slight amount of involution, and possess also the narrow and numerous whorls which are the invariable accompaniments of this characteristic in all the Ammonitoids and Nautiloids. The resemblance to *Amm. parcus* von Buch* is very close so far as the outlines of the sutures are concerned, but the sides are too flat, the umbilical shoulder very abrupt, and the siphonal side flattened. There is an equally close resemblance to *Ceratites carbonarius* Waagen,† but here again the siphonal side is flatter and the involution greater, the last whorl at the same size as in the largest one figured being broader on the side. The septal sutures are, however, very similar.

"The young, when of the same size, are very similar to the figure of *Goniatites lævidorsatus* Gabb,‡ but when larger, as in Meek's figure,§

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* Ueber Ceratiten. Abhand. Akad. d. Wissensch. 1848, pl. 4.

† Memoirs Geol. Surv. India, Pal. vol. ix, art. 4, pl. 1.

‡ Pal. Geol. Surv. California, vol. 1, pl. 3.

§ Geol. Expl. 40th Parallel, vol. iv, pl. x.

very considerable differences appear. The *lævidorsatus* being a heavily ribbed shell, even when quite large, with a rounded abdominal side; though here again I doubt if the sutures differ much.

"The young shell of species "A" [*Meekoceras aplanatum*] has rounded, smooth whorls, which increase very slowly by growth, and are full half an inch in diameter before the sides and abdomen (siphonal side) begin to show the flatness which characterizes the adult. At about this size also the whorls grow perceptibly broader in proportion on the sides, and the amount of involution increases gradually until it covers about one-third of the side, in a specimen about two and a half inches in diameter; the umbilical shoulder also changes at the same time, becoming abrupt and subangular.

"In some specimens there are indications of nodes on the sides, and in some the young until a late period are distinctly ribbed, the ribs being thick straight folds, reaching across the sides, but not up on to the siphonal side (abdomen).

"The age at which the serrations of the lobes appear could not be seen, but great caution should be exercised in this group in describing these characteristics, since they are liable to disappear with the removal of the shell, on account of their shallowness. Thus a full-grown shell may be readily mistaken for a Goniatite; or the young, before the serrations appear, for one of that genus."—(A. H.)

MEEKOCERAS MUSHBACHANUS* White.—Shell compressed-discoidal, having the peripheral side abruptly rounded; umbilicus open, shallow, about two-thirds as wide as the breadth of the outer volution in the adult, and proportionally narrower in the young; volutions flattened-convex on their sides, the convexity merging gradually into that of the peripheral side, but upon the umbilical side the volutions, especially the outer one, are abruptly shouldered; volutions in the young distinctly embracing, but the amount of involution increasing with the growth of the shell, so that the outer one embraces nearly one half of the next adjacent; siphonal cell of the septa, at or near adult size of the shell, small, wedge-shaped, narrowing toward the front end, where it is slightly notched; middle and outer lateral cells of nearly equal size, larger than any of the lobes, except in some cases the outer lateral one, somewhat abruptly rounded in front; inner lateral cell smaller than either of the other lateral ones, its inner anterior border a little more abruptly rounded than elsewhere; ventral and outer lateral lobes nearly equal in size, or the former a little the larger than the latter; their sides nearly straight and their ends subtruncate, that of the ventral lobe bearing six or seven narrow, prominent digitations, and that of the outer lateral lobe eight or nine; the inner lateral lobe about half as wide as the outer lateral, but otherwise similar; auxiliary lobes and cells between the inner lateral cell and the inner edge of the volution four each, irregular in size and shape, but all much smaller than the lateral lobes and cells; the auxiliary lobes much resembling the digitations of the lateral lobes. Surface in adult shells showing the usual lines of growth and strong transverse wrinkles, some of which assume a slight degree of regularity as transverse ridges; but in the case of the young these ridges, although not prominent, are distinct, and almost the same as in the young of *M. aplanatum*.

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* The specific name is given in honor of Mr. J. E. Mushbach, assistant topographer, who first discovered the species.

Diameter of the coil of the largest example in the collection, 118 millimeters; that of a smaller, but more perfect one, 95 millimeters; breadth or vertical diameter of the outer volution of the same, 43 millimeters; transverse diameter of the same, 22 millimeters.

Position and locality.—Jura-Trias strata; member D of the foregoing section at locality No. 1, Southeastern Idaho. Collected by Dr. A. C. Peale and J. E. Mushbach.

The following are Professor Hyatt's remarks upon this species:

"This species differs from "A" [*Meekoceras aplanatum*] in never having a flattened abdomen. This is rounded. The sides in the young and the aspect of the shell are precisely the same as in "A" [*M. aplanatum*], but the increase of the whorls by growth is much more rapid, so that at the diameter of an inch, or even somewhat less, they begin to flatten on the sides, show an abrupt umbilical shoulder, and cover up one-third of the whorl by involution. In consequence of the rounding of the abdomen, however, the sides actually appear in the full-grown to be more gibbous than in "A" [*M. aplanatum*]. One specimen at the total diameter of two and a half inches has one-half of the adjacent internal whorl covered by the outer one, an amount of involution which occurred much earlier in the history of the shell than at the diameter measured. Large, coarse folds are present in some of the specimens.

"This species in some cases has a strong resemblance to *Arcestes? perplanus* Meek, but is less involute." (A. H.)

MEEKOCERAS GRACILITATIS White.—Shell depressed-discoidal or sublenticular; siphonal side of the volutions flattened, the flattening being very distinct upon the inner volutions, even upon the smaller ones, but sometimes less so upon the living-chamber of full-grown specimens; umbilicus shallow in consequence of the slight transverse diameter of the shell, but it is somewhat open, although narrower than that of either of the preceding species, its width in the adult being not more than one-half the greatest vertical diameter of the outer volution, and in the young it is proportionally much less; volutions flattened-convex on their sides, rounded somewhat abruptly inward to meet the next volution within, but they are not so distinctly shouldered there as in the two preceding species, except perhaps in the younger of the volutions; the amount of involution being so great in the young shell that the earliest volutions are nearly or quite covered, but it so diminishes with the growth of the shell that in fully adult specimens the outer volution does not embrace more than one-half the width of the next within; siphonal cell of the septa near the outer chamber of the largest examples rather broad, shallow, and broadly rounded, occupying sometimes a little less and sometimes rather more than the whole of the flattened portion of the siphonal side; the outer and middle lateral cells about equal in size and regularly rounded; inner lateral cell shallower than the others and broadly rounded, its inner border being defined by a short abrupt curve backward; the ventral and the outer and inner lateral lobes all, except perhaps the outer lateral one, smaller than the cells; the ventral one being smallest, wedge-shaped, and bearing two slender digitations, the inner lateral next in size, with four or five digitations, and the outer lateral largest, with six or seven digitations; the auxiliary lobes and cells occupying a space adjacent to the next inner volution about as wide as that of the outer lateral lobe, and constituting a finely serrated suture, the lobes being minute and pointed, and the cells a little larger and rounded at their ends; the one adjacent to the suture being a little larger than the others. Surface of young examples nearly or quite plain, but in fully adult shells there is a tendency to form nodes or ribs, the latter sometimes crossing the periphery; but they do not appear to assume that regularity which we find in typical *Ceratites.*

Diameter of the coil of the largest example in the collection, 100 millimeters; vertical diameter of the outer portion of the living-chamber, 45 millimeters; transverse diameter of the same, 20 millimeters.

Position and locality.—Jura-Trias strata, member D of the foregoing section; at locality No. 1 and also at locality No. 2, Southeastern Idaho. Collected by Dr. A. C. Peale.

The following are Professor Hyatt's remarks upon this species:

"This species differs from "B" [*Meekoceras mushbachanus*] in about the same way that "B" differs from "A" [*M. aplanatum*] except in so far as it approximates more closely to "A" in having a similar flattened abdomen. This flattened abdomen appears at a much earlier age than in the less involute form, "A." In fact, before the shell reaches the diameter of three-sixteenths of an inch not only is the abdomen flattened, but the sides also; and the increase by growth is so rapid that the sides of the internal whorls, even before this period, are almost entirely hidden. This is therefore similar to those forms among *Ammonites*, which I have so often described as accelerated types, those which display in the earlier periods of growth and developement, in quick succession, characteristics which come out in slower* succession in other species. Like many of those forms also, a kind of premature degeneration appears, even before the animal can be said to have reached its adult condition. Thus, at the diameter of an inch and a half, or even less sometimes, the sides of the whorls no longer increase by growth with the same rapidity as in the young. The amount of involution consequently is not maintained at the same rate, and the sides of the internal whorls become more exposed, until in some old specimens they are only about half covered up.

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* "This expression, of course, is relative; applying not to the absolute amount of time occupied in the growth, but to the age at which the characteristics appear."

"Thick folds or ribs are present in some old specimens, and a tendency to form nodes. In some large specimens, the ribs cross the abdomen, and in one fragment a curious effect is produced by the retention of the constrictions formed by the transient mouths of the shell. These make depressions with swellings between, which give the abdomen a scalloped appearance, amply sufficient to found a new genus upon if economically used. There may be two rows of slight nodes on either side of the abdomen, giving this shell a slight resemblance to *Trachyceras* in some cases.

"The forward part of the living-chamber seems to be more rounded or gibbous than the after part, which has the square abdomen, even in old specimens; though I think that in extreme old age the whole shell would exhibit a round abdomen and more gibbous sides. These peculiarities, and its flattened abdomen, might readily mislead an observer to identify this species with *Amm. semipartitus* von Buch, but a glance at the septa would satisfy any one that they are distinct."—(A. H.)

MEEKOCERAS GRACILITATIS var.—Among the examples of *M. gracilitatis* which were obtained at locality No. 1 is one which shows a considerable modification in the character of the septa. These appear to be in all respects like those of the typical forms except as regards the inner lateral cell and the auxiliary lobes and cells. The inner lateral cell is smaller than in the typical forms, and its inner border is not so abruptly defined from the auxiliary series. This series occupies a wider space, and consists of more numerous serrations than in the typical forms; appearing, indeed, to consist of a finely serrated, nearly straight suture. The umbilical shoulder is also less abrupt than in the typical forms. Professor Hyatt thinks it may possibly prove to be a distinct species when better known.

Genus ARCESTES Suess.

ARCESTES? CIRRATUS White.—In his notes upon this collection of Cephalopods, Professor Hyatt refers this form provisionally to the genus *Arcestes* with the following remarks:

"The specimens are too fragmentary to tell with any certainty the species; and even the genus ought perhaps to be considered doubtful, because the whole outline of the suture was not seen. The 'runzelschicht,' however, was so marked that this appeared to show them to be identical with *Arcestes*. The septal sutures are, however, not entirely unlike those of *Gymnotoceras*."

There are only two specimens of this species in the collection, both of which, it is true, are too imperfect to afford the means for the satisfactory characterization of the species. The characters which are shown, however, are quite sufficient for its identification; and for the convenience of future reference, and the characterization of the strata from which it comes, I have applied the above specific name.

This shell, like those of the three species of *Meekoceras* which have already been described, is depressed-discoidal; the siphonal side rounded in the young and apparently a little angular in the adult, but the latter feature is not plainly shown in the examples; umbilicus open, but comparatively narrow; sides of the volutions flattened, those of the outer one of adult shells almost flat, or only slightly convex except near the outer and inner sides; the latter abruptly shouldered; involution very great in the young, but so lessening with growth that the outer portion of the living-chamber of adult shells does not embrace by more than one-fifth of its own width that next within. The examples do not show the character of the sutures satisfactorily, but the lobes and cells are both seen to be constricted about the middle, the ends of the former oblique, but digitate, as in *Meekoceras*, and the latter plain, as in that genus and *Ceratites.* Surface conspicuously marked by numerous longitudinal, abruptly raised lines, which enlarge into ridges in the adult, and which are separated by spaces a little wider than themselves; being also apparently continuous from the young state to the fully adult, so that the ridges and spaces, especially the latter, increase in width with the growth of the shell.

This species is much larger than either of the other species of Cephalopods which are described in this paper; the extreme diameter of the coil at fully adult size being not less than 180 to 200 millimeters; and the vertical diameter of the outer portion of the living-chamber about 80 or 85 millimeters.

Position and locality.—Jura-Trias strata, member D of the foregoing section; at locality No. 1, Southeastern Idaho. Collected by Dr. A. C. Peale.

ARCESTES ?———?—Three or four young examples only of this species were obtained by Dr. Peale from member D of the section at locality No. 1, shown on a previous page, all of which are too imperfect for specific determination. They are, however, so very like *A. gabbi* Meek, Vol. IV, Geol. Expl. 40th Parallel, p. 121, pl. x, figs. 6, 6^a, and 6^b, as to leave upon the mind a strong impression of their identity.

ARCESTES? ———?—Associated with the foregoing, a single specimen of another species, also very young, was obtained, which differs from the last in having a much more open umbilicus, and in the proportionally greater transverse diameter of the volutions.

Art. VI.—Jura-Trias Section of Southeastern Idaho and Western Wyoming.

By A. C. Peale, M. D.

In connection with Paleontological Papers No. 9, published in this Bulletin (Art. V, pp. 105–117) by Dr. C. A. White, in which a number of new and specially interesting species of fossils are described, I have thought it may be both interesting and useful to give briefly a few notes on the section of the Jura-Trias of the region from which these organic remains were obtained.

The rocks under consideration are exposed in considerable areas in the district assigned me for examination during the field-season of 1877, especially between the Wyoming and Portneuf Ranges. The former is in longitude 110° 48′ and the latter in approximate longitude 112°.

The region thus indicated is one of complicated folds and great displacements, and the Jura-Trias rocks, with the conformably underlying Carboniferous, enter largely into the structure of the mountains; entire ranges, indeed, being carved from them.

The Triassic Red Beds are found on the summit and on the western slopes of the Wyoming Range, in the former occupying a broad synclinal depression, and in the latter dipping westward into the valley of John Day's River. An immense fault extends along the eastern front of the Wyoming Range, giving it a monoclinal structure at this place, and when we cross the fold, which forms the western side of the range, we find another similar fault along the eastern side of the Salt River Range, which is parallel to the Wyoming Range, and only from eight to ten miles west of it. These faults are several thousand feet in extent.

In the Salt River Range, the Jura-Trias rocks are found entering into the complicated folds that form its central portions.

Twenty-five miles farther west, we reach the Blackfoot Basin, in which the Jura-Trias forms a large portion of the surface, the ridges having a comparatively low elevation, and the folds not being so greatly eroded as in the higher mountains. It is in this locality that the interesting collection of fossils, described by Dr. White, was found, and to which his paper is confined. The following is the general section of the Jura-Trias, beginning at the top:

General Section of Jura-Trias in Southeastern Idaho and Western Wyoming.

JURA-TRIAS.	JURASSIC.	*Belemnites Beds.*	5. Red and gray shales with green sandstones and irregular greenish arenaceous limestones at the top. Thickness, 700 feet.
		Pentacrinus Beds.	4. Laminated limestones, blue at base, passing into gray at top, succeeded above by grayish, calcareous shales; many of the layers are probably arenaceous. Thickness, 800 feet.
	TRIASSIC?	*Red Beds.*	3. Red quartzitic sandstones with shaly arenaceous and calcareous layers at the base of the section. These are probably the equivalent of the typical "Red Beds" of the Eastern Rocky Mountains. Thickness, 1.000+ feet.
		Meekoceras Beds.	2. Alternations of reddish and greenish sandstones and arenaceous and calcareous shales with blue and gray limestones, generally laminated. Thickness, 3,000+ feet. These with No. 1 are the beds of the section given in Dr. White's paper (as that of locality No. 1). The beds are fossiliferous at four horizons, containing species of a new Triassic? genus named *Meekoceras* by Professor Hyatt, together with forms that have been heretofore regarded as of Jurassic age.
CARBONIFEROUS?			1. Massive grayish-blue limestone, overlaid by quartzite and dark blue laminated limestones. Thickness, 1,200+ feet.

The thicknesses in this section are estimated, and when the region is more thoroughly studied may have to be somewhat modified.

The fossils described in Dr. White's paper came from No. 2, which I have called the "Meekoceras Beds," from the new genus named by Professor Hyatt. They are the following:

Meekoceras aplanatum White.
Meekoceras mushbachanus White.
Meekoceras gracilitatis White.

Besides these, the following were obtained:

Arcestes? cirratus White.
Arcestes? sp.?
Arcestes? sp.?
Terebratula semisimplex White.
Terebratula augusta Hall and Whitfield?
Eumicrotis curta M. & H.
Aviculopecten idahoensis Meek.
Aviculopecten altus White.
Aviculopecten pealei White.
Gervillia sp.?

No. 3 yielded no fossils.

No. 4 yielded the following:

Pentacrinus asteriscus.
Camptonectes bellistriatus.
Trigonia sp.?
Myacites sp.?

From No. 5 I obtained:

Belemnites densus.
Aviculopecten idahoensis ?
Gryphæa sp. ?
Undetermined bivalves.

At no one point was the entire section, as given above, exposed. The evidence for the section is as follows:

Nos. 1 and 2 were determined by the section at and near Station 66, south of John Gray's Lake (section at locality No. 1 in Dr. White's paper).

Near Station 56 in the Salt River Range, about 28 miles east of Station 66, beds lithologically similar to those of No. 2 in the general section just given, and containing *Aviculopecten pealei* and *Gervillia*, were seen in position above limestones similar to those of No. 1, which here contained quantities of *Productus multistriatus.* On this ground I have referred No. 1 to the Carboniferous.

Above the arenaceous and calcareous bed (which correspond lithologically and paleontologically with No. 2 of the section) in the Salt River Range are the red sandstones (No. 3). They are also probably in place above the section of Station 66, as is evident from the following:

Descending the ridge leading southwest from Station 66, southwesterly dips are noted in the strata last seen (the upper ones of section at locality No. 1, White's paper). After passing through the timber, which conceals the remainder of the section, we come to red sandstones, in all respects like those of the Salt River Range, having a northeasterly dip. We have therefore crossed a synclinal.

These facts, therefore, appear to justify me in connecting the sections.

Nos. 4 and 5 are determined by sections made in John Day's Valley, where they rest conformably on the "Red Beds." The entire section is conformable. Above the "Belemnites Beds" is a quartzite followed by a series of shales and sandstones several thousand feet in thickness, which has been referred to the Cretaceous.

It is not my intention to enter into any paleontological discussion; but there are some points based on the paleontological contents of the section to which I wish to refer briefly.

Pentacrinus asteriscus was found at a number of localities, other than those of the section, throughout the district, and always in beds above the horizon of the Red Beds. The following were the associated fossils identified by Dr. White:

Camptonectes bellistriatus.
Ostrea strigulecula.
Trigonia sp. ?
Tancredia sp. ?
Modiola sp. ?

Myalina sp.?
Myacites sp.?
Neritina sp.?

Undetermined Conchifers and Gasteropods.

I believe the only instance in which *P. asteriscus* has been found associated with Triassic forms is the one mentioned in the Reports of the Fortieth Parallel Survey,* in which it is stated that it was found associated with what are regarded as unmistakable Alpine Trias fossils, and a *Spirifera*, a palæozoic type. Mr. Emmons says:† "It should be stated also that these disks of *Pentacrinus* found in the Dun Glen limestone vary somewhat from the type-specimens, and are all of larger size, reaching one-fourth of an inch in diameter, while those of Jurassic age scarcely reach one-fifth of an inch. Professor Whitfield suggests that the Dun Glen variety may possibly be a new species."

Eumicrotis curta was not found associated with *Pentacrinus* anywhere in our district, but at several localities where the section was obscure it was found with

Aviculopecten idahoensis,
Lingula brevirostris,
Myalina sp.?,
Myacites sp.?, and

several undetermined species of *Aviculopecten*.

The beds from which they were collected were above the "Red Beds," but I was unable to determine their relation to the "Pentacrinus Beds."

In other areas, *Eumicrotis curta* has been found associated with species of Jurassic aspect. In the areas surveyed by the Fortieth Parallel Survey, it occurs with

Belemnites,
Gryphæa.

Terebratula augusta Hall & Whitfield,‡ as Dr. White remarks, has been considered by the authors as a Jurassic species.

The Cephalopods (from No. 2 of the section described) by Professor White are, according to his identifications, unquestionably Triassic according to European standards, resembling certain Cephalopods of the Muschelkalk of Europe.

The only other Cephalopods from our Western Trias are those obtained by the Fortieth Parallel Survey from the Star Peak Group, which have been considered the faunal equivalents of the St. Cassian and Hallstadt beds of the Austrian Alps. The Star Peak Group is referred by King to the Upper Trias, and is supposed to correspond to the Upper Red Beds of the Eastern Seas (*Rocky Mountain Region, &c.*). If this be so, we may perhaps consider the "Meekoceras Beds" of the section as the equivalent of King's Koipato Group, which is below the Star Peak Group. The localities, however, are too widely separated, and too imperfectly known, as regards the one in my district, to attempt to correlate the two sections more definitely.

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* Descriptive Geology, vol. ii, p. 711. Systematic Geology, vol. i, pp. 279, 280.

† Descriptive Geology, vol. ii, p. 711.

‡ Report U. S. Geol. Expl. 40th Parallel, Systematic Geology, vol. i, p. 292.

We cannot be too cautious in predicating the age of these beds before a detailed study of the stratigraphy is made, and a careful paleontological examination of the whole region undertaken and completed.

The "Meekoceras Beds," when first seen by us, were referred to the Upper Division of the Carboniferous.

There are numerous circumstances that appear to indicate that in the Jura-Trias, as in other formations, we have at either end of the formation a plane of paleontological indefiniteness, as it may be called; and the probability is that in the immediate vicinity of the lines separating the formations the strata should be considered as transition series. When the deposition of sediments is continuous from one formation to another, it is not so strange, as Dr. White has frequently remarked, that forms of life should continue uninterruptedly from one to the other, and that we should find, as in New Mexico,* Triassic plants at the top of the Jura, and as in our district and many other localities Jurassic invertebrates near the base of the Trias, and as in Nevada palæozoic types in the Lower Mesozoic.

In predicating the age of any group of beds, the organic contents of all descriptions, *vertebrate*, *invertebrate*, and *vegetable*, should be considered.

With the accumulation of data, many of the points that are now obscure and doubtful will assume the certainty of facts.

Until we know more of the rocks under consideration, I shall retain the name Jura-Trias for the formation.

To recapitulate, the investigations of 1877 in Southeastern Idaho and Western Wyoming indicate—

1. The lithological separation of the Jura-Trias into three divisions,—the upper and lower calcareous, and the middle mainly silcieous.

2. The presence of Jurassic forms in the upper division, the absence of organic remains in the middle group, and the presence in the lower of Triassic types associated with what have heretofore been regarded as Jurassic species.

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* See Report U. S. Geol. Surv. for 1875, 1876, pp. 84–87.

Art. VII.—Fossil Forests of the Volcanic Tertiary Formations of the Yellowstone National Park.

By W. H. Holmes.

The prevalence of extraordinary volcanic activity throughout that part of the Tertiary age represented by the post-Cretaceous rocks of the Yellowstone region has given to them a most unique and interesting character. So destitute of animal remains are they, and so unlike the formations of the age in other parts of the Rocky Mountain region, that, notwithstanding the frequent visits of geologists, no divisions into sub-groups have been made, and no more definite appellation for the whole group has been found than the "*Volcanic Tertiary*"; this name, although so general, is singularly appropriate, and, in the absence of specific determinations, may be used to designate the entire group of Tertiary strata in the Park district.

It is not my intention in this brief notice to attempt the classification or correlation of these strata, but to give a brief account of some very remarkable features brought to light by last year's explorations.

In the valley of the East Fork of the Yellowstone River, where this peculiar group of rocks is typically developed, they have a thickness of upwards of 5,000 feet. The prevailing materials which enter into their composition are fragmentary volcanic products, which have been apparently redistributed by water, and now form breccias, conglomerates, and sandstones. It has been noticed by nearly all visitors that these strata contain a great abundance of silicified wood, and in a few cases trunks of trees *in situ* have been reported. The lowest observed occurrence of the strata of this group is in the valley of the main Yellowstone, between the first and second cañons, at an elevation of about 5,000 feet above the sea. They are also finely developed in the Gallatin Range to the west of this valley, and about the sources of Cañon and Boulder Creeks reach a thickness of between 3,000 and 4,000 feet. At a number of points covering this entire thickness, masses of silicified wood occur, and near the divide at the head of Boulder Creek silicified trunks, many feet in height, and of gigantic proportions, stand in the identical strata in which they grew, the crumbling conglomerates having withered away, leaving them standing upright along the steep slopes of the mountain. In general, these strata are horizontal. The bedding is often heavy, and in places not well marked; sub-aërial volcanic deposits apparently alternate to some extent with the sub-aqueous.

Three miles above the mouth of Gardiner's River, in similar strata, there are a number of silicified trunks *in situ*, most of which occur in a stratum of sandstone that lies directly upon the eroded surface of a series of mica-schists that belong to the metamorphic range north of the Yellowstone River. This is at an elevation of 6,000 feet.

On the south side of the third cañon, opposite the mouth of Hell Roaring Creek, is a massive promontory composed of conglomerates, in which are very numerous intercalated beds of sandstones and shales. In the steeper faces of this promontory, many fine trunks are exposed. In 1872, Dr. Peale obtained some very perfect specimens of fossil leaves from these beds, on the Elk Creek side, which were determined by Professor Lesquereux to be of Eocene types. The walls of the cañon in the vicinity of Hell Roaring Creek are formed of the same series of rocks, which occur also at a number of points on the river between Elk Creek and the lower falls.

In the valley of the East Fork, the sedimentary formations of the Volcanic Tertiary reach their maximum developement. Here they rest upon the unevenly eroded surfaces of the palæozoic and granite rocks, and form a great part of the mountain ranges that enclose the valley. They are horizontal and apparently conformable throughout the entire thickness of 5,500 feet. The greater part of this immense group of strata is filled with the silicified remains of a multitude of forests.

The section given in the accompanying plate occurs in the north face of Amethyst Mountain, opposite the valley of Soda Butte Creek, and includes upwards of 2,000 feet of strata. The bed of the river is at an elevation of 6,700 feet above the sea, and the summit of Amethyst Mountain, 9,400. On the north side of the valley, near the mouth of Soda Butte Creek, there are between 300 and 400 feet of Carboniferous strata exposed along the base of the mountain slope. On the south side, occasional ledges of limestone appear above the detrital deposits. Thin sheets of basalt cover the flat part of the valley, which is here less than a mile in width.

The north face of Amethyst Mountain does not present as abrupt a profile as that given in the section, the middle part only being so precipitous. At the base and top there are comparatively gentle slopes; nevertheless, the actual stratigraphical conditions are truthfully represented.

As we ride up the trail that meanders the smooth river-bottom, we have but to turn our attention to the cliffs on the right hand to discover a multitude of the bleached trunks of the ancient forests. In the steeper middle portion of the mountain face, rows of upright trunks stand out on the ledges like the columns of a ruined temple. On the more gentle slopes farther down, but where it is still too steep to support vegetation, save a few pines, the petrified trunks fairly cover the surface, and were at first supposed by us to be the shattered remains of a recent forest.

In ascending one of the steep spurs that project from the main wall, the strata were found to consist, toward the base, of shales and fine-

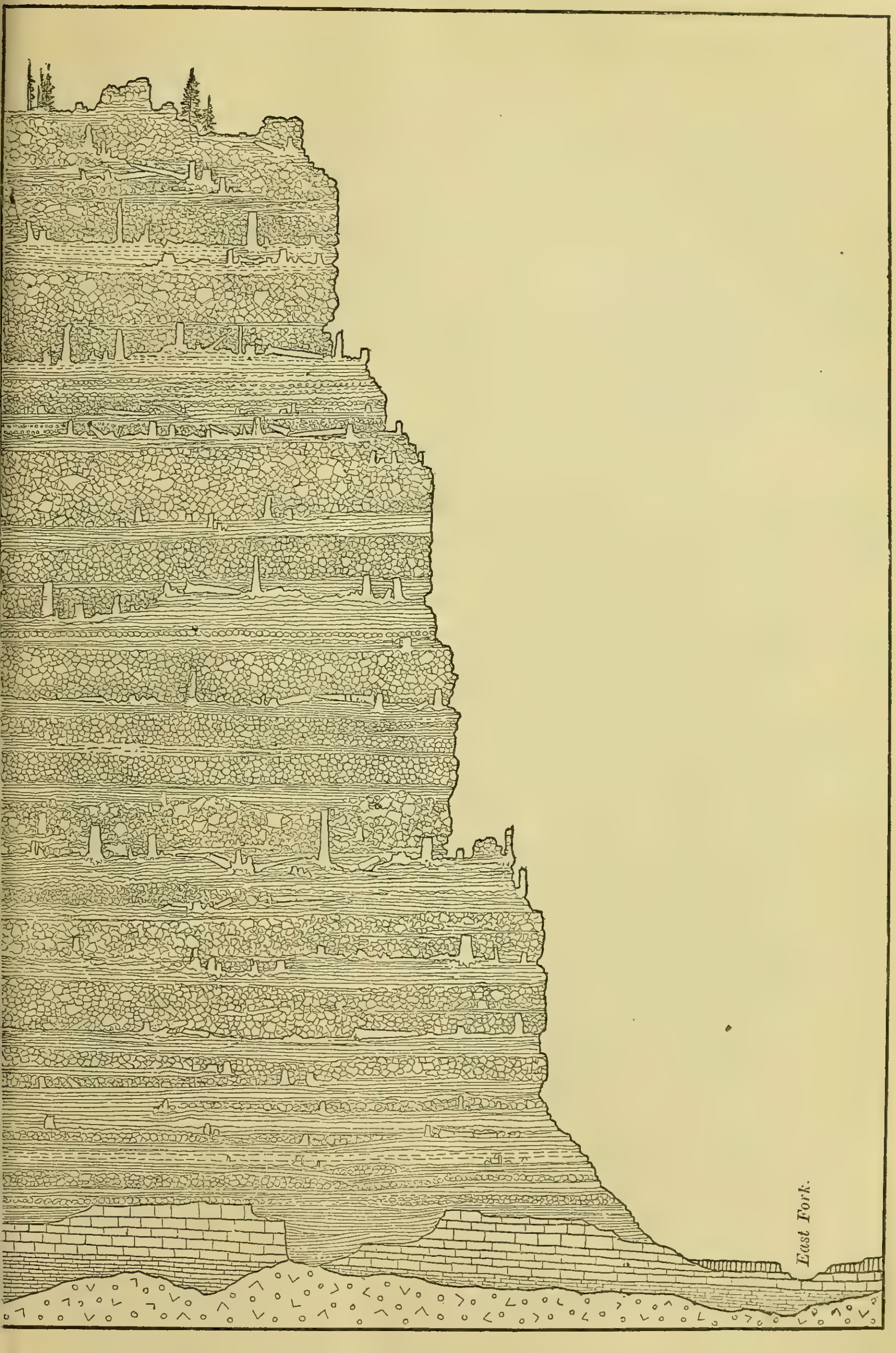

FIG. 1.—Section in the north face of Amethyst Mountain.

grained sandstones. Higher up conglomerates occur, and still higher coarse conglomerates and breccias prevail. Interbedded with the massive, irregular beds of the latter rocks are always thin layers of sandstones and shales. The sandstones are fine-grained, thinly bedded, and contain more or less tufaceous material. Their prevailing color is greenish and greenish-gray. They are apparently composed chiefly of materials derived directly or indirectly from volcanic sources. In no case are pebbles of quartz or other granitic constituents found in either the sandstones or conglomerates.

The exposures of strata in the first three or four hundred feet at the base are not good, and but few of the silicified trunks appear above the covering of vegetation. At the height of 500 feet, the occurrences become very numerous, and the great size and fine state of preservation of many of the trunks was a matter of much surprise. Prostrate trunks, 50 and 60 feet in length, are of frequent occurrence, and not a few of these are as much as 5 or 6 feet in diameter.

The standing trunks are generally rather short, the degradation of the compact enclosing strata being so slow that the brittle trunks break down almost as fast as they are exposed. In many cases the roots are exposed, and may be seen penetrating the now solid rock with all the original ramifications One upright trunk, of gigantic proportions, rises from the enclosing strata to the height of twelve feet. By careful measurement it was found to be ten feet in diameter, and as there is nothing to indicate to what part of the tree the exposed section belongs, the roots may be far below the surface, and we are free to imagine that there is buried here a worthy predecessor of the giant *Sequoias* of California. Although the trunk is hollow, and partly broken down on one side, the woody structure is perfectly preserved, the grain is straight, and the circles of growth distinctly marked. The bark, which still remains on the firmer parts, is four inches thick, and retains perfectly the original deeply lined outer surface. Specimens of the wood and bark were collected, but no microscopic examinations have been made. It is clear, however, that the tree was not a conifer. The strata which enclose this trunk are chiefly fine-grained greenish sandstones, indurated clays, and moderately coarse conglomerates. They have been built around it as it stood in comparatively shallow, but doubtless quiet waters. As would naturally be expected, these strata contain many vegetable remains: branches, rootlets, fruits, and leaves are extensively enclosed. One stratum of sandstone that occupies a horizon nearly on a level with the present top of the giant tree contains a great variety of the most perfectly preserved leaves. Such specimens as we were able to bring away with us have been submitted to Professor Leo Lesquereux for identification. They are found by him to belong to the Lower Pliocene or Upper Miocene, and correspond in a number of their species with the Chalk Bluffs specimens of Professor Whitney. They include—

Aralia Whitneyi,
Magnolia lanceolata,

Laurus canariensis,
Tilia (new sp.),
Fraxinus (new sp.),
Diospyros (new sp.),
Cornus (new sp.),
Pteris (new sp.),
Alnus (new sp.), and a
Fern (new sp.).

It will be observed that most of these species are new, which was also the case with the collection of Professor Whitney. It is also worthy of remark that none of the genera are identical with those of the Elk Creek locality previously mentioned. The stratigraphical relations of the two localities cannot easily be made out, as they are separated by fifteen miles of broken country in which the strata are obscured by igneous flows and Quaternary drift. The Elk Creek strata are lower by fully one thousand feet.

As far above the leaf-bearing horizon as I was able to ascend, the silicified trunks were very numerous and well preserved, and, by the aid of a field-glass, others could be detected in all parts of the cliff to the highest stratum.

At another point, nearly a mile farther east, I climbed the rugged walls of the mountain for the purpose of examining a number of large trees that were visible from below. Trunks and fragments of trunks were found in great numbers and in all conceivable positions. In most cases the woody structure is well preserved, the trunks have a tendency to break in sections, and on the exposed ends the lines of growth, from center to circumference, can be counted with ease. In many cases the wood is quite completely opalized or agatized, and such cavities as existed in the decayed trunks are filled with beautiful crystals of quartz and calcite. Our party was so fortunate as to procure some very handsome specimens of amethyst and ferruginous quartz. It is a matter worthy of observation that nearly all of the beautiful crystals that occur so plentifully in this region have been formed in the hollows of silicified trees. The same fact has been noticed in regard to similar crystals in many parts of the West, and notably in the case of the smoky quartz of the Pike's Peak region in Colorado.

The silicifying agents have been so unusually active in the strata of the Volcanic Tertiary that not only are all organic remains thoroughly silicified, but all cavities in the loosely bedded rocks and all fracture-lines in the strata are filled with chalcedony or other forms of quartz.

On reaching the heavily bedded conglomerates of the upper third of the cliff, I found the trees still more perfectly preserved. Many of the trunks are twenty and thirty feet in height. Their roots are in most cases imbedded in the layers of finer-grained materials, in which they grew, while the battered and branchless trunks are encased in the coarse conglomerates and breccias. These latter rocks are composed chiefly of basaltic fragments, many of which are of great size; there is, however, always enough tufaceous and other fine-grained material to fill in the interstices and act as a cement. These beds are massive and irregular, and seem to have accumulated too fast to be thoroughly redistributed by the waters. Only the stronger trees of the forest seem to have withstood the fierce storms of rocks that must have prevailed at the period of their entombment, as the smaller trunks and branches are prostrate or totally destroyed. In most cases where upright trunks penetrate the entire thickness of an enclosing bed, the tops may be seen to terminate with the upper surface of that bed, as if causes had acted at the beginning of the deposition of the succeeding stratum to plane down the irregularities of the old surface. In due course of time, this succeeding stratum produced its growth of forest, which followed its many predecessors into the subterranean depths, and in its turn was buried by the rapidly accumulating conglomerates. This remarkable alternation of events seems, in a general way, to have been kept up from the beginning to the end of the period.

The very precipitous character of the cliffs prevented me from reaching the upper part of the wall at this point, but I succeeded in making my way to the summit of the mountain at two other points, and found that everywhere the section was practically the same.

On the opposite side of the valley the same conditions were observed: the fossil trees occur at the highest point reached, 3,000 feet above the river. The ranges that form the rim of this valley on the north and east reach an elevation of 11,500 feet, and as the conglomerates may be seen reaching and forming the loftiest summits without perceptible break or change of character, it is probable that they will be found to enclose the remains of forests throughout.

On some of the higher summits to the east of Yellowstone Lake, similar stratified conglomerates contain silicified wood in a very fragmentary state. These conglomerates are composed mainly of basaltic and trachytic materials, but contain large quantities of fragments of sandstones and quartzites, which leads to the conclusion that portions of the earlier Tertiary strata have been broken up and ejected with the igneous products. It is quite probable that these strata were among the later products of the Volcanic Tertiary age proper. They are generally found abutting against masses of unstratified igneous materials that probably mark the sites of islands which were doubtless volcanic centers. I find that as we recede from these centers of eruption the strata diminish very perceptibly in thickness and coarseness of materials, and have at the same time a very perceptible dip toward the surrounding valleys. One is at times led to suspect that portions, at least, of these beds are of subaërial formation, as is the case with extensive strata about the cones of modern volcanoes, but there are a multitude of facts that go to prove that the greater part of the formations of this age were rearranged or sedimented in water.

As to the character of the seas or lakes in which the Volcanic Tertiary beds were laid down, it is clear that their waters were fresh, but as to their extent or distribution little is known. The formations cover or have covered an area of not less than 10,000 square miles, but they lie at a much greater elevation above the sea than the formations of synchronous lakes of neighboring provinces, and, so far as is known, have no actual connection with them.

It has been suggested by some one that these coarse volcanic strata may have been formed in very restricted bodies of water held high amongst the mountain ranges; but lakes cannot exist without barriers, and as has already been shown, the conglomerates, although naturally disintegrating more rapidly than any of the older rocks, now form the summits of many of the highest peaks that face the eastern plains, and the basins in which they were formed must have had free communication with the lowlands to the west, from the beginning to the end of the period.

For my present purpose it is sufficient to know that the bodies of water of this period were of sufficient extent not to be greatly affected in level by the filling-in of volcanic products or by the oscillations of the district under discussion, since we can have no correct measure of those oscillations of the surface which define the thickness and decide the character of strata without the barometer-like records of a sea-level.

The change of level produced by the great oscillation that preceded the Volcanic Tertiary period, and brought the lofty ranges of this region into existence, cannot fall far short of 20,000 feet. In order to reach these figures, we have but to add to the full thickness of the palæozoic and mesozoic strata the present elevation of the granitic ranges above the lowest observed stratum of the Tertiary rocks. At the beginning of the deposition of the Volcanic Tertiary rocks, however, the upward movement had ceased. The land had undergone enormous erosion, and subsidence had commenced. The great ranges that had lifted their crests to such lofty heights were again sinking beneath the sea. This subsidence did not cease until all, or nearly all, of the mountain peaks were submerged. It is in the strata deposited during this great subsidence that we must look for evidences of conditions and events that made the entombment and preservation of a vertical mile of forests possible.

The Yellowstone Valley, from the head of East Fork to the Lower Cañon, is carved out of strata which were formed along the west and south bases of the main eastern range of mountains. In many places the river has penetrated the full thickness of Tertiary strata, and has cut down into bodies of metamorphic rocks that at the beginning of the age were promontories or islands. It is plain, therefore, that those parts of the tree-bearing strata examined, were deposited along a shore-line, or, at least, near the borders of the Tertiary lake. Over large districts there must have been, during the period of general subsidence, a frequent alternation of land and sea. Land would have to exist while the forests grew and matured; water would have to cover the same area to deposit the succeeding stratum; and again this stratum would have to rise above the water before a second forest could grow. There are two ways in which this result could be brought about. In a district subject to such intense volcanic action as this must have been, a succession of minor oscillations might have been associated with the general subsidence, so that large areas of the lake border districts would be alternately above and beneath the sea, or, as was doubtless often the case, the shallow portions of the sea became filled up with the rapidly accumulating ejecta, and sub-aërial deposits of sufficient depth were laid down to allow the growth of forests, which, in time, were depressed by the general subsidence, to be buried by a succeeding stratum of the volcanic débris. But this latter method was not the ordinary one, as is attested by the fact that many of the forests have grown in beds of fine-grained material that must have been formed beneath the surface of the water.

I shall, however, not attempt to pursue this matter farther until all the data and materials collected have been examined. A thorough study of the various volcanic rocks will probably throw much light upon this very interesting group of strata.

Art. VIII.—Paleontological Papers No. 10: Conditions of Preservation of Invertebrate Fossils.

By C. A. White, M. D.

During the prosecution of his field-work, the paleontologist often observes certain interesting relations, not only between the lithological character and composition of the different kinds of fossiliferous rocks and the condition in which their contained fossils are preserved, but also between the lithological composition of those strata and the faunal characteristics of their fossils. In the latter instances, the case is largely one of original character and condition of the sea-bottom sediments as the ground of the habitat of those animals, while they were living, whose fossil remains they as rocky strata now inclose. It is proposed to make this latter subject the basis of a future paper, but the present one will be devoted to a discussion of some of the conditions of fossilization and preservation of invertebrate remains as they are found in the various kinds of stratified rocks of the different geological ages, and to institute some comparison of their mineral composition as fossils with that which they possessed in the living state, assuming that of the latter by the known composition of their present living representatives. It would add greatly to the interest and scope of this subject if a series of careful chemical analyses of these substances, both fossil and recent, could form a part of the basis of its discussion, but no opportunity has yet occurred for accomplishing such a task. Although detailed chemical analyses do not enter into the data for these discussions, a consideration of the mineral composition of the fossil remains as they now exist, and a comparison of that composition with what it was in the living state, necessarily forms the basis of a considerable part of the present paper. Such comparisons, while they show a close similarity in a very large proportion of cases, always exhibit at least some degree of contrast; and in some cases, a total change of mineral composition is found to have taken place. Many of the facts herein stated are patent to every collector of fossils, but the subject to which they relate is seldom discussed in paleontological writings, and the few references that are made to it are usually of a special or local character. Therefore in view of the somewhat extended field observations of the writer in the median portion of North America, it has been thought advisable to embody some general observations upon this subject in the present paper.

In a general way we may divide the substances which in life constituted the skeletal parts of invertebrate animals, which parts alone have been preserved in a fossil state, into the chitinous, siliceous, and calcareous. Chitinous skeletal substances are almost wholly, if not entirely, confined to the Articulata (including the lyopomatous brachiopods) and certain Acalephs; the siliceous, excepting the teeth of certain mollusks, to the Protozoa; while, with the exception of all but a few of the Articulata, all other invertebrates possess skeletal parts, if any, which are composed of calcareous substance only as their mineral constituent. These remarks, of course, apply to the composition of those skeletal parts in their living state. The mineral change which some of them have undergone after their first fossilization will be considered in following paragraphs. In fact, then, we find that the original mineral composition of far the greater part of invertebrate fossils was, in the living state, lime-carbonate combined with a greater or less proportion of animal substance; having been the same indeed as that of the shells and corals which constitute their present living representatives. Since the animal substance of these bodies, as is also the case with bones, was displaced during the process of fossilization, usually by the infiltration and precipitation of additional lime-carbonate, it would seem that the chances for, and the condition of, the preservation of all kinds of these calcareous skeletal remains would be equal in identical circumstances of environment. But there is, as we shall see, a greater variety of condition among fossil forms of this kind than is referable to either their original mineral composition or the environing circumstances of their fossilization and preservation.

Three divisions may be made of the manner in which fossil forms are preserved, namely: (1) fossilization proper of the substance of the skeletal parts; (2) moulds; (3) casts; (4) pseudomorphs. In the first case, the original substance, as well as the external form of the object, is more or less completely preserved. In the second, the whole substance of the object, at some time subsequent to its rocky entombment, has been removed by decomposition or solution, and its consequent escape through the porous imbedding matrix, leaving a cavity which is the exact counterpart of the external form of the formerly inclosed object. In the third case, the more or less complete external form of the object has been restored by the refilling of the mould with a substance similar to that of the matrix, or the deposition of some mineral either wholly or in part different from the matrix; such as calcite, pyrite, &c. In the fourth case, that of pseudomorphs, the substance of the fossil in its original condition has been exchanged, atom by atom, for another mineral substance, usually silex.

Pseudomorphs thus resemble casts, and in one sense they are such, but they differ from casts, which consist merely of the filling-substance of previously formed moulds, by the manner of their production, and in many cases, at least, by having the texture and even the microscopic structure of the original body preserved. This method of preservation is perhaps more clearly exemplified in the case of silicified wood than in any other, where not only the character and appearance of the woody fibre is perfectly retained, but the microscopic structure is often so perfectly preserved as to distinguish the botanical division to which it belongs. In the case of pseudomorphic silicification of invertebrate fossils, the microscopic structure is seldom, if ever, so perfectly preserved as it is in the case of wood, but their true pseudomorphism, nevertheless, occurs, the more common cases of which consist of the silicification of shells, corals, &c., in limestone. In these cases, the objects were without doubt first fossilized as calcareous substances, and as such they could not have been removed by solution, leaving their moulds in the matrix, because that matrix was of essentially the same composition as themselves and nearly or quite equally soluble. Therefore it is evident that the change of substance must have been effected by the process of pseudomorphism which has just been explained, and which was initiated by a movement and segregation of the siliceous atoms that were previously distributed in the substance of the imbedding rock, which movement and segregation were much the same as took place in the formation of flint-nodules in chalk and similar siliceous nodules and masses that are often met with in limestones. That this pseudomorphism of calcareous fossils by silicification began long after they had become perfectly fossilized, is indicated by the fact that the process has, in most cases at least, taken place in connection with the weathering of the strata which contain the fossils. For example, it is very common to find shells, corals, crinoid fragments, &c., wholly or partly silicified upon and near the surfaces of certain paleozoic limestone strata, as well as in the interstices which are filled with the débris of their decomposition; while fossils of the same kinds which are imbedded in the solid and unweathered portions of the same strata, are wholly calcareous. Although fossilization proper of calcareous remains is more complete in limestones than in other rocks, it is in limestones also that most of the cases of silicious pseudomorphism of invertebrate remains, as just defined, takes place, the latter cases as compared with the former being very few.

Casts and moulds are more common in sandstones than in other rocks, although they are not uncommon in magnesian limestones, and in both sandy and argillaceous shales. The common occurrence of moulds in sandstone is easily accounted for by the porous character of the rock, which admits of the percolation of water charged with solvents of lime-carbonate. Such percolation is, of course, necessary in the production of moulds in all kinds of rock, but it is more complete in sandstones than in any other rocks. Some of the finest moulds of both fresh-water and marine species, those which preserve not only the form, but also the delicate surface-markings of the fossils most perfectly, are found in hematite; but such instances are very rare compared with the occurrence of moulds in sandstones. While ordinary limestones are, as a rule, more fossiliferous than any other rocks, magnesian limestones notably contain very few fossils. There are some exceptions to the latter rule, but in all cases, so far as I am aware, when the rock approaches a true dolomite, the contained fossils are all and of all kinds in the form of moulds, the inner surfaces of which usually have a drusy lining.

Casts of the more perfect kinds are formed by the infiltration of foreign mineral matter into complete moulds which were previously formed in the manner already explained, and by its precipitation there until the cavities became completely filled. Such casts are sometimes composed of iron pyrite, some of which are often very perfect and beautiful. More frequently, however, the casts are such as have been formed by a filling of the spaces which the fossils formerly occupied by the substance of the rocky matrix in which they were imbedded, the fossils themselves having gradually passed away by solution, while the substance of the adjacent matrix followed closely upon it in consequence of the pressure of the superincumbent strata. It is in the form of such casts as these alone that many fossils, especially the shells of several families of Conchifers, have been preserved; and single valves of such shells are often very well preserved in that manner.

The manner of preservation of invertebrate fossils which is here designated as fossilization proper consists of the minimum of change in the mineral constituents of the skeletal parts. As already stated, some change is always effected in the mineral composition of the object fossilized, but almost all molluscan as well as certain other shells, and also corals, being composed almost wholly of lime-carbonate, when preserved in limestone strata, or in such strata as contain any considerable amount of lime-carbonate, still retain in the fossil state much the same composition which they had while living. In most of these cases, the change has been so slight that even the microscopic texture of the shells and the minute and intricate details of the corals are as perfectly preserved as they were in the living state. Thus, the fibrous shell-structure of certain families of Brachiopods, and the punctate structure of others, the pearly shell-structure of certain Cephalopods, Gasteropods, and Conchifers, and the prismatic shell-structure peculiar to certain families of Conchifers, are often, indeed generally, as easily studied in the fossils as they are in their living representatives.

The siliceous skeletal parts of fossil invertebrates, when such were produced, seem to have been so purely siliceous that they have apparently not changed at all by fossilization. Chitinous substances, however, seem always to have undergone more or less alteration, although they are among the more permanent of fossil forms. For the purposes of this discussion, under the head of chitinous fossils are included the shells of lyopomatous brachiopods (such as those of *Lingula*, *Discina*, &c.), the crusts of trilobites and other crustaceans, and stipes of graptolites. In limestones, chitinous fossils seem to have become quite calcareous in some instances, and in all cases they are more brittle and mineral-like than living chitine is, and yet in all cases they are readily recognized as of chitinous origin when they are compared with fossils of calcareous origin. Chitinous fossils are also among the most permanent of fossil forms, and they are often found in a perfect condition, when all their associated fossils, which were originally calcareous, exist only in the form of casts or moulds. This is especially noticeable in the case of lyopomatous brachiopods in sandstones and some magnesian limestones.

Although the mineral composition of calcareous fossil shells and corals is usually that of almost pure calcite, it is seldom, if ever, the case that, upon fracture, they show the planes of cleavage of that mineral; but they generally, as before stated, preserve their original microscopic structure. On the contrary, in almost all cases, all parts of every fossil echinoderm shows upon fracture the true crystallized form of calcite. The mineral is evidently nearly pure, but it is never transparent and seldom translucent, except in thin flakes along the cleavage planes. It is also an interesting fact in this connection that while the substance of every one of the numerous and often minute pieces which compose the body and appendages of fossil echinoderms of all kinds, may be so perfectly crystallized as to allow free cleavage upon all sides of the fundamental rhombohedron of calcite, none of the planes of cleavage ever pass from one joint or piece to another, even though the parts may be not only in their natural position of contact, but solidly mineralized together. The perfect mineralization of echinodermal bodies, and almost invariably in the form of calcite, appears the more remarkable when it is remembered that the substance of those bodies in the living state is much less solid than that of any molluscan shell. Possibly this porous character, admitting the addition of a greater proportion of calcite in solution by percolation or saturation than could enter the more solid shells, affords the true ground for explaining the phenomenon just noted, but it still remains unexplained why the granular texture of the original substance of the echinodermal body is always obliterated, and why the sutures between the parts always form perfect barriers to the continuation of the planes of cleavage. These planes are not only interrupted by the sutures, but their direction is always different in each piece, showing that the process of crystallization was independent in each piece, however small it may have been.

Although calcareous fossils are fully preserved in the purer and ordinarily compact limestones, they have in such cases become so compacted with the stone itself that it is always difficult and usually impossible to arrive at a full knowledge of their structure and characteristics. It is, therefore, in strata which are only partly calcareous that invertebrate fossils are, as a rule, the most completely preserved. In these cases, the fossils seem to have served as *nuclei* to which was attracted a sufficient amount of lime-carbonate in solution to solidify them by its precipitation within their substance and interstitial cavities, while the imbedding rock was not greatly hardened either by that or any other process. Therefore, the most perfect calcareous fossils are found in the clayey and shaly partings of limestone strata and in sandy and clayey shales which are also calcareous.

It seems difficult to explain why the segregation of lime-carbonate should have ceased at the full solidification of the fossil itself, and why it did not continue until at least the immediately surrounding portions of the imbedding matrix were also hardened, with the fossil as a nucleus. This latter condition does sometimes occur; but, as a rule, to which there are only rare exceptions, the matrix is no more fully charged with lime-carbonate, and no harder from any cause, in immediate contact with the fossils, than it is in other parts of the same stratum, even when the rock contains enough of lime-carbonate to have thus preserved many more fossils than it has ever contained. So completely are the fossils thus preserved, and so distinctly separate are they from the matrix, that it is often the case that not only their delicate surface-markings, but their minute and fragile appendages also, are so perfectly preserved that they may be as easily studied as the corresponding parts of living forms.

That there should be a difference in the manner and completeness, or otherwise, of the preservation of fossils which were originally different in their mineral composition is too evident to excite remark; but one would not *a priori* expect to find any material difference in the completeness of the preservation of shells and other fossils which were originally nearly or quite identical in the original composition of their mineral constituent, and that were fossilized under identical circumstances of environment. Such differences, however, do occur, and they are moreover as great between certain forms which are zoölogically nearly related, as they are between certain others which are distantly related. Thus, for example, the difference in this respect is greater in some instances between the shells of different families of the same class of mollusks than it is between those of some mollusks and the shells of certain worms. These remarks will be closed by citing a few examples of this unequal condition of preservation of invertebrate fossils under identical circumstances of environment.

Argillaceous shales which are also more or less calcareous prevail in all the paleozoic formations of the eastern portion of North America; and for our present purpose we may select the Hamilton Shales of New York as furnishing an example of uniformity of circumstances of environment during the fossilization of an invertebrate fauna. In these shales, the abundant and diverse forms of arthropomatous brachiopods are beautifully and perfectly preserved in almost all cases, and the calcareous character of the fossils is uniform and perfect. The same may be said of the Corals and Polyzoa; while in the same layers which contain these fossils, the associated shells of all the Conchifers, without exception so far as I am aware, exist only in the form of moulds and casts, the substance of the shells having entirely disappeared. Associated chitinous fossils, as represented by the crusts of trilobites and shells of lyopomatous brachiopods and Ostracoids, are well preserved, and in such condition as to plainly indicate their chitinous origin. In these shales also the crinoidal and other echinodermal remains exist in their usual condition of crystallized lime-carbonate.

In some of the shales of the coal-measures of Illinois and the adjoining States, however, certain species of Conchifers are as perfectly preserved in a calcareons condition as any of the arthropomatous brachiopods are; but, as a rule, the shells of Conchifers are not so well preserved in these shales, nor in the paleozoic rocks generally, as those of the brachiopods are. It is also noticeable that the shell-substance of the Cephalopods of the paleozoic rocks is not so completely preserved as it is in those of the mesozoic strata.

Well preserved mesozoic fossils appear to have undergone, in some respects, a less complete change than those of the paleozoic rocks. For example, the shells of Cephalopods, and some other mollusks, usually retain their original pearly lustre and iridescence, and the fossils generally have a less mineralized aspect than those of the paleozoic rocks. There is, of course, much difference in these and other respects to be observed in the different strata of that age and in different regions. The following remarks relate mainly to the mesozoic strata and their fossils in the western portion of the national domain, and principally to the Cretaceous strata there.

The mesozoic rocks of the Western Territories consist very largely of sandstones and sandy shales, with occasionally clayey layers, which are usually also more or less sandy. Limestones are rare among those rocks, but the sandstones and shales all contain more or less lime-carbonate, usually in comparatively small proportion, but sometimes enough to be detected without a chemical test. In the mesozoic sandstones it is often the case that all the contained fossils are in the form of casts and moulds, with the not infrequent exception of the *Ostreidæ* alone. It is often the case also that all the fossils of a sandstone are preserved by fossilization proper, and all in essentially the same calcareous condition, including the shells of Cephalopods, Gasteropods, and Conchifers among mollusks, as well as the few Radiates and Articulates which occur there; but it is often noticeable, especially in the Cretaceous sandstones, that the shells of the *Ostreidæ* resist the solvents, to which they have all been exposed, better than those of any other mollusks. Indeed, it sometimes occurs that in sandstones which carry a great variety of molluscan shells in the form of casts and moulds, the *Ostreidæ* alone are completely preserved in their natural calcareous condition, having evidently never been materially affected by the solvents which reduced all their associated molluscan shells to the condition of moulds and casts. In the Cretaceous rocks of the Western Territories, all other fossils than the shells of mollusks are very rare; and when the latter are well preserved by fossilization proper, so far as the writer's observations have gone, there appears to be very little difference in the condition in which those of the different classes and families have been preserved. That is, in such cases all the Conchifers appear to be nearly or quite as well preserved as any of the other mollusks. In other words, when the circumstances were very favorable, all molluscan shells are well preserved and, when unfavorable, the *Ostreidæ* are found to have been the last of molluscan shells to yield to their adverse influence.

A collection of invertebrate fossils that has been sent to the Office of the Survey from the Cretaceous strata of Bell County, Texas, unlike the collections from the Western Territories before referred to, shows a very decided deficiency of preservation of the shell-substance of the Gasteropods as well as of all the Conchifers (except the *Ostreidæ*) as compared with their associated fossils, although the soft strata from which they came is largely composed of lime-carbonate. In that collection, the *Ostreidæ* are abundant and varied, embracing nearly all the known generic and subgeneric forms of that family, and all are most perfectly preserved. Their condition in this respect is even better than that of the few associated arthropomatous brachiopods, although, as already shown, their paleozoic representatives are among the best preserved of all paleozoic fossils. Among those Texan Cretaceous fossils it was observed that the Corals, Echinoderms, Rudistæ, and Serpulæ, as well as the Ostreidæ, were thoroughly calcified and well preserved, showing a marked contrast in this respect with the Conchifers and Gasteropods, and in part with the Cephalopods. In the case of the fossils of this collection, the power of the Ostreidæ to resist solution seems to have been shared with several other, but distantly related, fossils; while the want of such resistance on the part of the Conchifers was shared by the Gasteropods and Cephalopods, instead of being peculiar to the first-named class alone, as it seems to have been in the Hamilton Shales and some other paleozoic strata.

Since the condition of the marine Tertiary fossils will not be considered in the present paper, it remains only to make a few remarks upon the condition of preservation of the brackish- and fresh-water fossils of the Laramie Group and the succeeding Tertiary groups of the West. The invertebrate faunæ of these formations are far less diversified than those of the marine formations, being confined almost entirely to the two molluscan classes, Gasteropods and Conchifers. These shells are found mostly in sandstones and shales which are more or less sandy. They are very often found in the condition of moulds and casts, and sometimes occur as siliceous pseudomorphs; but they are commonly calcareous and properly fossilized. No material difference in the condition or perfection of their preservation has been observed among the different kinds of these fossils. The environing influences seem to have affected all the families and classes alike, but it was observed that some examples of certain species of Conchifers, which were found in some argillaceous shales of the Laramie Group in Wyoming, had a much thinner test than those of the same species which were found in some sandy shales of the same formation only a few miles distant. This may have been the result of a deficiency of lime in the water in the first-named instance, but it is not unlikely that the difference was produced by a diminution of the substance of the shells during the process of their fossilization.

Briefly reviewing the subject of the manner of preservation of invertebrate fossils, it appears that those of the various kinds whose original composition was calcareous and apparently identical, or nearly so, have resisted unequally the solvents with which they have been brought in contact in the circumstances of their fossilization. It thus seems that, as a rule, the shells of certain families of the Conchifers have resisted solution less effectually than any others, and that among paleozoic fossils the arthropomatous brachiopods, and among mesozoic fossils the Ostreidæ, have resisted solution most effectually. It also appears that chitinous substances, although not originally so completely mineral-like as shells and corals, are even more permanent as fossils than those which were originally calcareous, since they have resisted solution more effectually.

No explanation is at present offered of the reason why certain fossils are much more perfectly preserved than others under the same environing circumstances; and, indeed, it seems difficult to suggest an explanation. As already remarked, it might *a priori* be expected that substances so different as chitinous and calcareous shells are would differ in the condition of their preservation under the same environing circumstances, but it could not thus have been expected that so great a difference as we have seen should exist in that respect between the calcareous shells of the different families of mollusks.

Art. IX.—Supplement to the Bibliography of North American Invertebrate Paleontology.

By C. A. White and H. Alleyne Nicholson.

PART I.

PUBLICATIONS MADE IN THE UNITED STATES.—By C. A. WHITE.

PREFACE TO PART I.

The Bibliography of North American Invertebrate Paleontology, which was published last year as Miscellaneous Publications No. 10 of the U. S. Geological Survey, was brought down to the close of 1877. The following Supplement embraces the publications which have been made during the year 1878, and also all the omissions pertaining to the first publication which have been detected.

The year 1878 has not been productive of many publications of North American Invertebrate Paleontology, and the larger part of the entries in this Supplement are, therefore, such as supply the omissions referred to. As to these entries of previously omitted publications, some of them ought to have been included in the original work, in accordance with the plan announced in its Preface; but a considerable proportion of them were intentionally excluded from it, as not being within its then proposed scope. It was then intended to prepare the work mainly as an annotated catalogue of the publications which would be constantly needed by the working paleontologist, rather than as a finished Bibliography, such, for example, as Dr. Coues's Bibliography of North American Birds.

The difficulty then experienced in fixing a limit to the scope of such a work has increased rather than diminished since the original work was published, by the expressed desire of some of those who are interested in the work to see its scope extended. I have, therefore, admitted some entries of mere catalogues of fossils, and some, also, of works which, according to the rules recognized by naturalists, are not regularly published. In these cases, however, those facts are stated in the entry, and they may be easily discriminated by the working paleontologist who is in search of other matter. Many persons have assisted me, but I am under especial obligations to my friend Mr. S. H. Scudder in this respect.

C. A. W.

Anon. List of Fossils belonging to the Several Formations alluded to in the Report; arranged according to localities. <*Nicollet's Rep. Hydrog. Basin U. Miss. River* (Appendix C), pp. 167–170. 1843.

Atrypa lingulata is described on p. 167, and *Ostrea congesta* on p. 169; the latter by Conrad.—There is, apparently, nothing in the book to tell who is the author of the catalogue, or of the first-named species, but it is probably attributable to T. A. Conrad.

Anon. [**Hall, James,** *and* **R. P. Whitfield.**] Preliminary Notice of the Lamellibranchiate Shells of the Upper Helderberg, Hamilton, and Chemung Groups; with others from the Waverly Sandstone. 80 pp. 8vo. 1869.

This memoir was noticed in the *Am. Journ. Sci.*, vol. xlix, 2d series, p. 276, and attributed to James Hall, although the work itself bears the name of no author. It does not appear that Prof. Hall has anywhere claimed sole authorship; but, on the contrary, Prof. Whitfield has claimed the authorship to be jointly with Prof. Hall and himself. See *Ann. Rep. Wisconsin Geol. Sur.* 1878, p. 51, and *Paleontology of Wisconsin* (now in press), pp. 136, 137, and 138.—Genera *Palæaneilo*, *Limoptera*, *Mytilarca*, *Pholadella*, *Cimetaria*, *Phthonia*, and *Modiomorpha*.

Barrett, S. T. The Coralline or Niagara Limestone of the Appalachian System. <*Am. Journ. Sci.*, vol. xv, 3d ser., pp. 370–372. 1878.

Dr. Barrett in this geological paper describes and names provisionally *Proetus pachydermatus* and *Strophodonta nearpassii*.

Barrett, S. T. Descriptions of New Species of Fossils from the Upper Silurian Rocks of Port Jervis, N. Y.; with notes on the occurrence of the Coralline Limestone at that locality. <*Ann. N. Y. Acad. Sci.*, vol. i, pp. 121–124. 1878.

Barris, W. H. New Fossils from the Corniferous Formation at Davenport. <*Davenport Acad. Nat. Sci.*, vol. ii, pp. 282–288, 2 plates, and 1 woodcut. 1878.

This paper contains descriptions of six new species of invertebrate fossils, and a new genus of Crinoids is proposed, namely, *Stereocrinus*.

Calvin, Samuel. On some Dark Shale recently discovered beneath the Devonian Limestones, at Independence, Iowa; with a notice of its fossils and description of new species. <*Bull. U. S. Geol. and Geog. Surv. Terr.*, vol. iv, pp. 725–730. 1878.

Collett, John. List of Fossils found in the Keokuk Group at Crawfordsville, Ind. <*7th Ann. Rep. Geol. Surv. Indiana*, pp. 376–381. 1876.

This is a catalogue only, but it is systematically arranged, and valuable for comparison of the Indiana fauna of the Keokuk epoch with that of the typical locality.

Conrad, T. A. [Description of Ostrea congesta.] <*Nicollet's Rep. Hydrog. Basin U. Miss. River* (Appendix C), p. 169. 1843.

Conrad, T. A. Fossils of the Vicksburg Eocene Beds. <*Wailes's Rep. Agric. and Geol. of Miss.*, pp. 287–289, 4 plates. 1854.

No descriptions are here given, but a part of the species catalogued are illustrated on the plates.

Conrad, T. A. Descriptions of new Mollusks from Cretaceous Beds of Colorado. <*Ann. Rep. U. S. Geol. Surv. Terr. for* 1873, pp. 455, 456. 1874.

In this paper, Mr. Conrad removes his genus *Haploscapha* from the family *Rudistæ*, where he first placed it, and refers it to an "unrecognized family" near *Inoceramus*.

Dale, T. N., *jr.* A Contribution to the Paleontology of the Vicinity of Poughkeepsie [New York]. <*Proc. Poughkeepsie Acad. Nat. Sci.*, p. 2. 1878.

Mr. Dale announces the discovery of well-known species of fossils of the Trenton period in rocks at Poughkeepsie and on the west side of the Hudson River immediately opposite that place.

This two-page 8vo slip appears as an extract from the *Proc. Pough. Acad. Nat. Sci.*, under date of December 4, 1878, but it bears no pagination or reference to the number of the volume. I am informed by Mr. Dale that it will appear in "Part I of Vol. II, 1878–79." The same facts are embodied in an article by the same author in the January (1879) number of *Am. Journ. Sci.*

Dyer, C. B. *See* **Miller, S. A.,** *and* **C. B. Dyer.**

Emmons, Ebenezer. American Geology: Vol. I, Part I. 194 pp. 8vo. Albany, 1855.

Part II, pp. 251 (minus 40 pp. by error of pagination); 2 double lithograph-plates of fossils and 17 plates of woodcuts of the same size; mostly of well-known New York fossils. Also many woodcuts distributed in the text. A number of new species are described and also the following genera: *Monograpsus*, *Cladograpsus*, *Glossograpsus*, *Staurograpsus*, *Nemagrapsus*, and *Microdiscus*.

Emmons, Ebenezer. Manual of Geology. 297 pp. 8vo. 1860.

Contains many woodcut illustrations.

Ford, S. W. Two New Species of Primordial Fossils. < *Am. Journ. Sci.*, vol. xv, 3d ser., pp. 124–127, 1 woodcut. 1878.

Genus *Protocyathus.*

Ford, S. W. Note on Lingulella cœlata. < *Am. Journ. Sci.*, vol. xv, 3d ser., pp. 127–129. 1878.

Ford, S. W. Note on the Developement of Olenellus asaphoides. < *Am. Journ. Sci.*, vol. xv, 3d ser., pp. 129, 130. 1878.

Ford, S. W. On Certain Forms of Brachiopoda occurring in the Swedish Primordial. < *Am. Journ. Sci.*, vol. xv, 3d ser., pp. 364–366. 1878.

Comparison is made of the opercula of *Hyolithes* of the Troy, N. Y., Primordial rocks, with the valves of *Acrothele* of Linnarsson from the Swedish Primordial.

Gabb, William M. On the Topography of Santo Domingo. < *Trans. Am. Phil. Soc. Phila.*, vol. xv, pp. 49–259. 1873.

Chapter XIII, comprising pp. 200–259, is devoted to the paleontology of the island under the heading, "Descriptive Catalogue of the Mollusca." No statement is made as to the age of the numerous fossils which he enumerates and describes, but they are apparently all Tertiary.

Genera *Planorbella, Metulella, Glyphostoma, Ectracheliza, Plochelœa, Iopsis, Orthaulax, Dolophanes, Cylichnella,* and *Bothrocorbula.*

Gabb, William M. Description of a Collection of Fossils made by Doctor Raimondi in Peru. < *Journ. Acad. Nat. Sci.*, vol. viii, pp. 263–336, 9 plates. 1877.

Tertiary and Mesozoic.—Genera *Perisconatica* and *Petropoma.*—To these descriptions is added a Notice of a few Carboniferous Fossils, a Bibliography of South American Paleontology, and a Synopsis of South American Paleontology.

Grote, A. R., *and* **W. H. Pitt.** New Specimen from the Water-lime Group at Buffalo, N. Y. < *Proc. Am. Asso. Adv. Sci.*, vol. xxvi, pp. 300–302, 1 woodcut. 1878.

Upper Silurian.—This is a notice of a ramus of *Pterygotus cummingsii*, previously described by those authors, which, according to their estimate, indicates a length of five feet for the whole animal.

Gurley, William. Notice of the Discovery of the Position of the Crural Processes in the genus Atrypa. < *Proc. Am. Phil. Soc. Phila.*, vol. xvii, pp. 337, 338, and one plate. 1878.

Mr. Gurley shows that the "loop," which has been regarded as a continuous band connecting the spiral cones of *Atrypa*, is really divided in the middle by a suture, or even broader parting or hiatus.

Hall, James. The Louisville Limestones. Note on the hydraulic beds and associated limestones at the Falls of the Ohio. Pamphlet. 4to. 16 pp. Advance sheets of vol. v, part 2, Paleontology of New York. Nov., 1877.

In these notes, Prof. Hall gives a tabulated list of the fossils found in the Hydraulic, and Encrinal beds at Louisville, and shows that they are properly the equivalent of the Hamilton Group of New York, and not of the Upper Helderberg, as formerly supposed. He also shows in the same memoir that the "Black Slate" of Ohio and adjoining States carries many fossils identical with those of the Genesee Slate of New York, and claims that the supposed two formations are one and continuous.

Hall, James, *and* **R. P. Whitfield.** Notice of three new species of fossil shells from the Devonian of Ohio. < *23d Ann. Rep. Regents N. Y. Univ. on Condition of State Cabinet*, pp. 240, 241. 1873.

Hall, James, *and* **R. P. Whitfield.** Notice of two new species of fossil shells from the Potsdam Sandstone of New York. < *23d Ann. Rep. Regents Univ. on Condition of State Cabinet*, pp. 241, 242. 1873.

Genus *Palæacmæa.*—This article was issued in pamphlet form, together with other matter from the same volume, in 1872. See, also, these authors' names in connection with the second entry under the head of "**Anon.**"

Horn, G. H. Notes on some Coleopterous remains from the Bone-cave at Port Kennedy, Penn'a. < *Trans. Am. Entom. Soc.*, vol. v, pp. 241–245. 1876.

Hyatt, Alpheus. Report on the Cretaceous Fossils from Maroïm, Province of Sergipe, Brazil, in the collection of Professor Hartt. < *Geology and Physical Geography of Brazil*, 8vo, 606 pp. Boston: Fields, Osgood & Co., 1870. pp. 385–393.

In this paper Prof. Hyatt says: "All the Brazilian Ammonites are either identical with, or so closely allied to, species already described from the Texas beds by Rœmer and others, that they cannot be safely separated."

James, U. P. Descriptions of newly discovered species of fossils from the Lower Silurian Formation:—Cincinnati Group. < "*The Paleontologist*" (published in 8vo pamphlet form, at irregular intervals, at Cincinnati, Ohio, by U. P. James), No. 1, pp. 1–8. 1878.

This article contains descriptions of the following species: *Astylospongia tumidus*, *Stromatopora papillata*, *Chætetes crustulatus*, *C.* ——*?*, *C.* ——*?*, *Heliolites Shepardi*, *Fistulipora ? multipora*, *Agelacrinus holbrooki*, *Helopora dendrina*, *H. tenuis*, *H. meeki*, *H. parvula*, *Ptilodictya hilli*, *P. plumaria*, *P. flexuosa*, *P. granulosa*, *P. parallela*, *Ceramopora ? beani*, *C. ? irregularis*, *C. alternata*, *C. concentrica*, *Hippothoa delicatula*, *Orthoceras hindei*, *Cyclonema ? minor*, *Strophomena ? ulrichi*, *Orthis* (*Platystrophia*) *acuminata*, *Zygospira modesta* var. *kentuckyensis*, *Spirorbis ? lovelandensis*, *Ptilodictya fimbriata*, and *P.* ——*?*. The two last species are from the *Upper* Silurian of Ohio.

James, U. P. Description of newly discovered species of fossils, and remarks on others, from the Lower and Upper Silurian rocks of Ohio. < "*The Paleontologist*," No. 2, pp. 9–16. 8vo. 1878.

The following species are described: *Buthotrephis filiciformis*, *Sphenothallus latifolius* Hall?, *Trachyum undosum*, *Stromatopora lunata*, *S. hindei*, *Lyellia striata*, *L. americana* Milne-Edwards, *Chætetes subrotundatus*, *C. lycoperdon*, *C. petropolitanus* Pander, *Callopora milfordensis*, *Ceramopora whitei*, *C. radiata*, *Pleurotomaria ohioensis*, *P. dryope* Billings, and *Pterinea subquadrata*.

Marcou, Jules. On the Terebratula Mormonii. < *Trans. St. Louis Acad. Sci.*, vol. iii, pp. 252–255. 1875.

In this note Prof. Marcou claims priority of his names *Terebratula uta*, *Orthis pecosii*, and *Terebratula mormonii*, over *Rhynchonella osagensis* and *Orthis carbonaria* of Swallow, and *Retzia punctilifera* of Shumard.

Mazyck, Wm. G., *and* **A. W. Vogdes.** Description of a new fossil from the Cretaceous Beds of Charleston, S. C. < *Proc. Acad. Nat. Sci. Phila. for* 1878, p. 272, 1 woodcut. 1878.

The fossil described is *Anomia andersonii* M. & V.

Meek, F. B. Description of fossils from the Auriferous Slates of California. < *Geol. Surv. California, Geology*, vol. i (Appendix B), pp. 477–482, 1 plate. 1865.

Jurassic.—This article is in the volume of *Geology*, and not in either of those devoted to Paleontology exclusively.

Mickleborough, John, *and* **A. G. Wetherby.** A classified list of Lower Silurian fossils, Cincinnati Group. < *Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 61–86. 1878.

A classified catalogue only, but a full and useful one.

Miller, S. A. Description of a New Genus and Eleven New Species of Fossils, with remarks upon others well known, from the Cincinnati Group. < *Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 100–108, 1 plate. 1878.

Mr. Miller proposes the genus *Angellum* for a small shell of doubtful relations; and also announces the discovery of a perforated foramen in the ventral valve of *Pholadops cincinnatiensis* Hall.

Miller, S. A. Description of Eight New Species of Holocystites from the Niagara Group. < *Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 129–136, 1 plate. 1878.

Part of the plate is devoted to Prof. Whitfield's article in the same volume.—Based on collections from the Upper Silurian of Ripley and Jefferson Counties, Indiana.

Miller, S. A., *and* **C. B. Dyer.** Contributions to Paleontology. < *Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 24–39, 2 plates. 1878.

Lower and Upper Silurian.—Genera *Blastophycus*, *Trichophycus*, *Microspongia*, and *Walcottia*.

Miller, S. A., *and* **C. B. Dyer.** Contributions to Paleontology, No. 2. 8vo pamphlet. 11 pp. 2 plates. "Printed by James Barclay, 269 Vine street, Cincinnati, O." 1878.

This appears to be a continuation of the foregoing paper. It is not, however, published as a part of the *Journ. Cincinnati Soc. Nat. Hist.*, but appears to have been printed privately.—Genera *Dactylophycus*, *Heliophycus*, *Dystactophycus*, *Chlocphycus*, *Aristophycus*, and *Bythopora*.

Ordway, Albert. On the supposed identity of Paradoxides harlani Green with the Paradoxides spinosus Bœck. <*Proc. Boston Soc. Nat. Hist.*, vol. viii, pp. 1–5, 2 woodcuts. 1861.

Ordway, Albert. On the Occurrence of other Fossil Forms at Braintree. <*Ibid.* pp. 5, 6. 1861.

Packard, A. S., *jr.* Results of Observations on the Drift Phenomena of Labrador and the Atlantic Coast Southward. <*Am. Journ. Sci. for* 1866, pp. 30–32.

This article has references to the post-Tertiary fossils of the region discussed.

Packard, A. S., *jr.* Observations on the Glacial Phenomena of Labrador and Maine; with a view of the recent Invertebrate Fauna of Labrador. <*Mem. Boston Soc. Nat. Hist.*, vol. i, pp. 210–303, 2 plates. 1865.

Dr. Packard in this memoir gives much valuable matter relating to zoology and post-Tertiary geology. With this he gives a long list of species which are found fossil in the post-Glacial deposits of Labrador, Anticosti, New Brunswick, and Maine, most of which are of living species, but the following are described as new: *Bela robusta* and *Fusus* (*Neptunea*) *labradorensis*.

Pitt, W. H. *See* **Grote, A. R.,** *and* **W. H. Pitt.** 1878.

Rafinesque, Constantine Smaltz. The Complete Writings of Constantine Smaltz Rafinesque on Recent and Fossil Conchology. Edited by Wm. G. Binney and George W. Tryon, Jr. New York, London, Paris & Madrid. 8vo. 96 pp. 3 plates, 8 woodcuts. 1864.

This is a collection of the writings of Rafinesque, a part being in French (one article in Spanish) and a part in English; originally published partly in the United States and partly in Europe, and embracing descriptions of fossil and recent mollusks from North and South America and Asia. It contains many descriptions, both generic and specific, only a part of the names of which have been adopted by naturalists.

Rogers, William B. *and* **Henry D.** Contributions to the Geology of the Tertiary Formations of Virginia. <*Trans. Am. Philos. Soc. Phila.*, vol. v, (n. s.), pp. 319–341. 1835.

This article contains remarks on the "Geology of a portion of the peninsula between the James and York rivers," and descriptions of four species of shells. It is the first part of a work, of which the second is mentioned in the 6th entry, p. 58, of *Bib. N. A. Invert. Pal.*

Say, Thomas. [Descriptions of Productus spinosus and P. incurvus.] <*Long's First Exped.*, vol. i. 8vo. Philadelphia, Carey & Lea, publishers. 1823.

These descriptions are in the form of footnotes to p. 106.

Say, Thomas. [Description of Gryphæa corrugata.] <*Long's First Exped.*, vol. ii. Footnote to pp. 410, 411. 8vo. 1823.

Scudder, S. H. Remarks on some Fossil Insects from the Carboniferous Formation of Illinois and from the Devonian Rocks of New Brunswick. <*Proc. Boston Soc. Nat. Hist.*, vol. x, pp. 95, 96. 1865.

Scudder, S. H. Results of an examination of a small collection of fossil Insects obtained by Prof. Wm. Denton in the Tertiary beds of Green River, Colorado. <*Proc. Boston Soc. Nat. Hist.*, vol. xi, pp. 117, 118. 1867.

Only one species is named in this paper. The author subsequently corrected the title to make it read, "White River, Colorado," instead of "Green River, Colorado."

Scudder, S. H. Remarks on Mormolucoides articulatus, a fossil Neuropteron, from the Conn. River Sandstone. <*Proc. Boston Soc. Nat. Hist.*, vol. xi, p. 140. 1867.

Triassic?

Scudder, S. H. Notice of Fossil Insects from the Devonian Rocks of New Brunswick; and of Haplophlebium barnesii. <*Proc. Boston Soc. Nat. Hist.*, vol. xi, pp. 150, 151. 1867.

Abstract of the same in *Am. Naturalist*, vol. i, pp. 445, 446.

Scudder, S. H. Remarks on two new Fossil Insects from the Carboniferous Formation in America. <*Proc. Boston Soc. Nat. Hist.*, vol. xi, pp. 401–403. 1868.

Reprinted in *Scudder's Entomological Notes*, 1, pp. 7–9.

Scudder, S. H. Notes on the fossil Insects found at the "Petrified-fish Cut", Green River. <*Hayden's Sun Pictures*, 4to, pp. 150; 30 photograph-plates, p. 98. Julius Bien, New York. 1870.

Describes without name fossil insects from the Green River Group, near Green River City, Wyoming.

Scudder, S. H. Fossil Insects from the Rocky Mountains. <*Am. Naturalist*, vol. vi, pp. 665–668. 1872.

The fossils here referred to are from the Green River Tertiary beds. No species are described.

Scudder, S. H. On an English fossil Insect, supposed to be Lepidopterous. <*Proc. Boston Soc. Nat. Hist.*, vol. xvi, p. 112. 1874.

Geological horizon, Stonesfield Slate.

Scudder S. H. Remains of Insects occurring in Carboniferous Shale at Cape Breton. <*Proc. Boston Soc. Nat. Hist.*, vol. xviii, pp. 113, 114. 1875.

Reprinted in *Scudder's Entomological Notes*, 5, pp. 2, 3.—Geological horizon near that of the Millstone Grit.

Scudder, S. H. Fossil Orthoptera from the Rocky Mountain Tertiaries. <*Bull. U. S. Geol. and Geog. Surv. Terr.*, vol. ii, pp. 447–449. 1876.

Scudder, S. H. Supplementary Note on Fossil Myriapods. <*Mem. Boston Soc. Nat. Hist.*, vol. ii, pp. 561, 562. 1876.

These fossils are from the Sigillarian stumps at the Joggins, Nova Scotia.

Scudder, S. H. On the Post-Pliocene fossils and the Geology of Sankoty Head, Nantucket. <*Proc. Boston Soc. Nat. Hist.*, vol. xviii, pp. 182–185. 1876.

See note on the same subject, *Am. Journ. Sci.*, vol. x, 3d series, p. 365, in connection with an article by A. E. Verrill.

Scudder, S. H. Note on the close affiliation of the Insects of Europe and America in the Carboniferous Epoch. <*Proc. Boston Soc. Nat. Hist.*, vol. xviii, pp. 358, 359. 1876.

Scudder, S. H. Note on the wing of a Cockroach from the Carboniferous Formation of Pittston, Penn'a. <*Proc. Boston Soc. Nat. Hist.*, vol. xix, pp. 238, 239. 1877.

Reprinted in *Scudder's Entomological Notes*, 6, pp. 35, 36, 1878.—The title of this paper is not given in the *Proc. Boston Soc. Nat. Hist.*, and it is not mentioned in the table of contents of that volume; doubtless by inadvertence.

Scudder, S. H. An Insect-wing of extreme simplicity from the Coal Formation. <*Proc. Boston Soc. Nat. Hist.*, vol. xix, pp. 248, 249. 1878.

Reprinted in *Scudder's Entomological Notes*, 6, pp. 37, 38.

Scudder, S. H. Rachura, a new genus of fossil Crustacea. <*Proc. Boston Soc. Nat. Hist.*, vol. xix, pp. 296–300, pl. 9, figs. 3, 3*a*. 1878.

Reprinted in *Scudder's Entomological Notes*, 6, pp. 50–54, with the same plate.

Springer, Frank. *See* **Wachsmuth, Charles,** *and* **Frank Springer.**

Ulrich, E. O. Observations on Fossil Annelids, and description of some new forms. <*Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 87–91, 1 pl. 1878.

Part of the plate relates to the next following article.—Lower Silurian.—Genera *Protoscolex* and *Eotrophonia*.

Ulrich, E. O. Descriptions of some new species of fossils from the Cincinnati Group. <*Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 92–100, 1 pl. 1878.

Lower Silurian.—Part of the plate relates to the next preceding article.—Genera *Anomaloides* and *Protasterina*.

Verrill, A. E. On the Post-Pliocene Fossils of Sankoty Head, Nantucket Island; by A. E. Verrill; with a note on Geology by S. H. Scudder. <*Am. Journ. Sci.*, vol. x, pp. 364–375. 1875.

It is shown in this article that the fossils occupy two limited but distinct layers only a few inches apart; the lower layer containing only such species as now inhabit the coasts of Southern New England and further south; and the upper containing such as now live in the colder waters further north. Mr. Scudder gives a long list of the fossils.

Vogdes, A. W. A Monograph of the genera Zethus, Cybele, Encrinurus, and Cryptonymus. 8vo pamphlet. 35 pp., 4 photograph-plates. Charleston, South Carolina. 1878.

This memoir consists of a discussion and rearrangement of previously published species of the genera indicated.

Vogdes, A. W., William G. Mazyck *and.* *See* **Mazyck, William G.,** *and* **A. W. Vogdes.**

Wachsmuth, Charles, *and* **Frank Springer.** Transition forms in Crinoids and description of five new species. <*Proc. Acad. Nat. Sci. Phila. for* 1878, pp. 224–266, with 2 photograph-plates. 1878.

Wallace, Samuel J. On the "Geodes" of the Keokuk Formation, and the genus Biopalla. <*Am. Journ. Sci.*, vol, xv, 3d ser., pp. 366–370. 1878.

The author takes the ground that the well-known geodes of the Keokuk Limestone (Subcarboniferous) are of organic origin—sponges; for which he proposes the genus *Biopalla*, and describes eight species from that formation.

Wetherby, A. G. *See* **Mickleborough, John,** *and* **A. G. Wetherby.**

White, C. A. Descriptions of New Species of Invertebrate Fossils from the Carboniferous and Upper Silurian Rocks of Illinois and Indiana. <*Proc. Acad. Nat. Sci. Phila. for* 1878, pp. 29–37. 1878.

White, C. A. Paleontological Papers No. 6: Descriptions of New Species of Invertebrate Fossils from the Laramie Group. <*Bull. U. S. Geol. & Geog. Surv. Terr.*, vol. iv, pp. 707–719. 1878.

White, C. A. Paleontological Papers No. 7: On the Distribution of Molluscan Species in the Laramie Group. <*Bull. U. S. Geol. & Geog. Surv. Terr.*, vol. iv, pp. 721–724. 1878.

In this paper the author shows that Molluscan species are so distributed as to show the identity of the following groups of strata as members of the great Laramie Group: Judith River beds, Fort Union beds, Lignitic series of Eastern Colorado, Bitter Creek series of Southern Wyoming, and the Bear River Valley series of Western Wyoming.

White, C. A. Paleontological Papers No. 8: Remarks on the Laramie Group. <*Bull. U. S. Geol. & Geog. Surv. Terr.*, vol. iv, pp. 865–876. 1878.

In this paper the author discusses the geographical and vertical range of the fossils of the Laramie Group, besides other questions concerning its extent, geological age, &c.

Whitfield, R. P. Preliminary Descriptions of New Species of Fossils from the Lower Geological Formations of Wisconsin. <*Ann. Rep. Geol. Surv. Wisconsin for* 1877 (Chamberlin, 8vo pamphlet, 93 pp. Madison, Wisconsin, 1878), pp. 50–89. 1878.

Genus *Scœvogyra*, with three species. Professor Whitfield also describes a species each of *Ellipsocephalus*, *Bellerophon*, and *Triplesia* from the Potsdam Sandstone, showing an antiquity for these genera not hitherto known.

Whitfield, R. P. Remarks on some Lamellibranchiate Shells of the Hudson River Group, with descriptions of four new species. <*Journ. Cincinnati Soc. Nat. Hist.*, vol. i, pp. 137–141, one plate. 1878.

Part of the plate is devoted to the article of Mr. Miller in the same volume.

Whitfield, R. P. *See* **Hall, James,** *and* **R. P. Whitfield**; *and also under head of* **Anon.**

A six-page pamphlet has been received from the author, bearing the following title:

"Kent Scientific Institute. (Miscellaneous Papers No. 3.) Notes upon the Fossil Remains of the Lower Carboniferous Limestone exposed at Grand Rapids, Michigan. By E. A. Strong."

It is without date or place of publication, and probably ought not to be regarded as regularly published; but it is noticed here at the suggestion of those who think a work of this kind ought to contain a notice of all printed matter relating to its subject, leaving the question of validity of publication to be settled by the practice of naturalists. The following species are described as new: *Cladodus irregularis*, *Phillipsia longispina*, *Nautilus ellipticus*, *N. kentensis*, *Allorisma elongata*, and *A. quadrata*.

PART II.

PUBLICATIONS MADE IN BRITISH NORTH AMERICA, WEST INDIES, AND EUROPE.*—By H. ALLEYNE NICHOLSON.

Barrande, Joachim. État actuel des connaissances acquises sur la faune primordiale. [The actual condition of our knowledge as to the Primordial Fauna.] <*Bull. de la Soc. Géol. de France,* 2e sér., t. xvi, pp. 516–546. 1859.

A portion of this memoir refers to the Primordial Group and its fossils in North America.

Barrande, Joachim. Observations sur l'existence de la faune primordiale dans la Chaine Cantabrique. [On the existence of the Primordial Fauna in the Cantabrian Mountains.] <*Bull. de la Soc. Géol. de France,* 2e sér., t. xvii, pp. 542–554. 1860.

Refers to and describes a *Paradoxides* found by Prof. W. B. Rogers near Boston, U. S.

Barrande, Joachim. Assentiment de Prof. James Hall, et autres documents nouveaux au sujet de la faune primordiale en Amérique. [Assent of Prof. James Hall, and other new documents on the subject of the Primordial Fauna of America.] <*Bull. de la Soc. Géol. de France,* 2e sér., t. xix, pp. 721–745. 1862.

Bigsby, J. J. Thesaurus Devonico-Carboniferus: The Flora and Fauna of the Devonian and Carboniferous Periods. The genera and species arranged in tabular form, showing their horizons, recurrences, localities, and other facts. 8vo. 1878.

Relates in large part to the Devonian and Carboniferous fossils of North America.

Brady, Henry B. Description d'une nouvelle espèce de Foraminifère des couches Miocène de la Jamaïque. <*Ann. de la Soc. Malacologique de Belgique,* t. xi, p. 15, [original pagination not known to the writer]. 1876.

Describes, under the name of *Tinoporus pilaris,* a new Foraminifer from the Miocene Tertiary of Jamaica.

Dawson, J. W. New Facts relating to Eozoön Canadense. <*Canad. Naturalist,* new ser., vol. viii, pp. 282–285. 1878.

From the *Proceedings of the American Association for the Advancement of Science, Buffalo meeting,* August, 1876.

Desor, G. Note sur l'existence de coquilles marines des mers actuels dans le bassin du lac Ontario (Canada) jusqu'à l'altitude de 310 pieds. [Note on the existence of marine shells of existing species in the basin of Lake Ontario, up to elevations of 310 feet.] <*Bull. de la Soc. Géol. de France,* 2e sér., t. viii, pp. 420–423. 1851.

Etheridge, Robert. Palæontology of the Coasts of the Arctic Lands visited by the late British Expedition under Captain Sir George Nares, R. N., K. C. B., F. R. S. <*Quart. Journ. Geol. Soc. Lond.,* vol. xxxiv, pp. 568–636, pls. xxv–xxix.

A large number of invertebrate fossils from the Silurian, Devonian, and Carboniferous rocks of the Arctic regions are described in this important paper. The new species and varieties described are *Receptaculites arcticus, Monograptus convolutus,* his var. *coppingeri, Halysites catenulatus,* var. *feildeni* and var. *harti, Syringopora parallela, Zaphrentis offleyensis, Amplexus feildeni, Pentamerus coppingeri, Strophodonta feildeni, Murchisonia latifasciata, Helicotoma naresii, Platyceras naticoides,* all from the Silurian, and *Spirifera aldrichi* from the Devonian. Mr. R. Etheridge, Jun., appends a valuable bibliography of the Arctic fossil *Polyzoa;* and there is also a table showing the geographical distribution of the Polar Palæozoic fossils.

Geinitz, H. B. Sur les Graptolites. [On Graptolites.] <*Bull. de la Soc. Géol. de France,* 2e sér., t. ix, pp. 186–188. 1851.

Graptolithus gracilis, Hall, and *G. hallianus,* Prout, with some other forms, are regarded by the author as being Sertularians rather than true Graptolites.

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*The writer takes this opportunity of returning his best thanks to his friends R. Etheridge, Esq., Jun., and R. Bullen Newton, Esq., from whom he has received kind assistance in the preparation of the following list. Dr. Scudder has also been good enough to supply references to additional publications of his own, either omitted in the Catalogue or not published at the time of its appearance, and the help thus afforded is here gratefully acknowledged.

Jones, T. Rupert, *and* **W. K. Parker.** Notice sur les Foraminifères vivants et fossiles de la Jamaïque. <*Annales de la Soc. Malacologique de Belgique,* tome xi, pp. 15. 1876. [Original pagination not known to the writer.]

The authors give lists of the *Foraminifera* of the Tertiary deposits of Jamaica. One species, which is found both in the fossil and living condition, is described and figured as new under the name of *Textularia barrettii.* A list of the Miocene fossils of Jamaica, compiled from memoirs by Mr. Guppy and Mr. Etheridge, is appended to the paper.

Logan, [*Sir*] William. Sur la formation Silurienne des environs de Québec, Canada. < *Bull. de la Soc. Géol. de France,* 2e sér., t. xii, pp. 504–508. 1855.

Records the occurrence of a large number of species of fossils.

Marcou, J. Liste additionnelle des fossiles du terrain taconique de l'Amérique du Nord. [Additional list of the fossils of the Taconic Formation of North America.] < *Bull. de la Soc. Géol. de France,* 2e sér., t. xix, pp. 746–752. 1862.

Marcou, J. Notice sur les gisements des lentilles trilobitifères taconiques de la Pointe Lévis, Canada. [Note on the geological position of the nodules with Trilobites at Point Lévis, Canada.] < *Bull. de la Soc. Géol. de France,* 2e sér., t. xxi, pp. 236–255.

Marcou, J. La faune primordiale dans le pays de Galles, et la géologie Californienne. < *Bull. de la Soc. Géol. de France,* 2e sér., t. xxiii, pp. 552–559. 1866.

Mentions a number of fossils met with in California.

Marcou, J. Le Dyas au Nébraska. < *Bull. de la Soc. Géol. de France,* 2e sér., t. xxiv, pp. 280–300. 1867.

The author gives lists of fossils.

Nicholson, H. Alleyne, *and* **J. Murie.** On the Minute Structure of Stromatopora and its Allies. < *Journ. of the Linnean Soc.,* vol. xiv, pp. 187–246, pls. i–iv.

In this memoir the authors deal with the history and literature, the mode of occurrence, minute structure, classification and types, and zoological affinities of the Stromatoporoids. The material dealt with is largely drawn from American formations. The genera *Clathrodictyon, Stylodictyon,* and *Pachystroma,* are founded upon specimens from the Devonian and Silurian deposits of North America.

Scudder, S. H. Letter to C. F. Hartt on the Devonian Insects of New Brunswick. <*Observations on the Geology of Southern New Brunswick,* by L. W. Bailey, pp. 140–141. 1865.

Reprinted in *Amer. Journ. Sci. and Arts,* ser. 2, vol. xxxix, pp. 357–358, and in *Trans. Entom. Soc. Lond.,* ser. 3. vol. ii, Proc. pp. 117–118.

Scudder, S. H. [Descriptions of Palæozoic Insects.] *See* Dawson's "*Acadian Geology,*" pp. 387–388 and 524–526; also by the same author, "On some Remains of Palæozoic Insects recently discovered in Nova Scotia and New Brunswick," in the *Geological Magazine,* Decade I, vol. iv, pp. 385–388, pl. xvii, figs. 1–5.

Scudder, S. H. [Extract from a letter to Selys-Longchamps on Bryeria; translated into French.] < *Comptes Rendus Soc. Entom. Belg.,* [2], No. 21, p. 2.

Mr. Scudder herein claims that the nervation of *Bryeria* shows that it cannot be a Neuropteron, as it was described to be.

Scudder, S. H. New and Interesting Insects from the Carboniferous of Cape Breton. <*Canad. Nat.,* new ser., vol. viii, pp. 88–90. 1876.

Reprinted from the *Proc. Am. Assoc. Adv. Sci.,* vol. xxiv, pp. 110–111.

Scudder, S. H. Description d'un nouveau papillon fossile (Satyrites Reynesii), trouvé à Aix en Provence. <*Rev. et Mag. de Zool.,* vol. xxiii, pp. 66–72, pl. vii. 1872.

Translated in the *Geol. Mag.,* vol. ix, pp. 532–533, pl. xiii, figs. 2 and 3.

Scudder, S. H. The Insects of the Tertiary Beds at Quesnel. <*Report of the Geological Survey of Canada for* 1875–76, pp. 266–280. 1877.

The new species of insects determined from the Tertiary beds of Quesnel, in British Columbia, are as follows:—Among the *Hymenoptera: Formica arcana, Hypoclinia obliterata, Aphenogaster longæva, Pimpla saxea, P. senecta, P. decessa,* and *Calyptites* (gen. nov.) *antediluvianum;* among *Diptera: Boletina sepulta, Brachypeza abita, B. procera, Trichonta dawsoni, Anthomyia inanimata, A. burgessi, Heteromyza senilis, Sciomyza revelata, Lithortalis* (gen. nov.) *picta, Lonchæa senescens,* and *Palloptera mortiana;* among *Coleoptera: Prometopia debilis;* and among *Hemiptera: Lachnus petrorum.*

Scudder, S. H. Additions to the Insect-fauna of the Tertiary Beds at Quesnel, British Columbia. <*Report of Progress of the Geological Survey of Canada for* 1876–77, pp. 457–464. 1878.

The new species described are *Sciara deperdita* (*Diptera*), *Enschistus antiquus* and *Lachnus quesneli* (*Hemiptera*), and *Bothromicromus* (gen. nov.) *lachlani* (*Neuroptera*). Some egg-cocoons of Spiders are described under the name of *Aranea columbiæ.*

Shumard, B. F. Existence du Terrain Permien au Nouveau Mexique. [Existence of the Permian formation in New Mexico.] <*Bull. de la Soc. Géol. de France,* 2e sér., vol. xv, pp. 531–533. 1857.

Whiteaves, J. F. On some Jurassic Fossils from the Coast Range of British Columbia. <*Canad. Naturalist,* new series, vol. viii, No. 7, pp. 400–410.

These fossils are interesting as forming the first instance of the occurrence of a well-marked fauna in British Columbia. They were collected by Mr. G. M. Dawson, and consist of 27 species of *Mollusca* and one of *Annelida.* Their state of preservation is, however, so bad that generic characters are sometimes doubtful. A provisional list is given of the species, with brief descriptions of those that appear to be new, and critical remarks on others. The new species recorded are: *Pinna subcancellata, Grammatodon? itasyoucoensis,* and *Trigonia dawsoni.*

Whiteaves, J. F. Notes on some of the Fossils collected during Mr. Selwyn's Expedition in British Columbia. <*Report of Progress Geological Survey of Canada for* 1875–76, pp. 96–106. 1877.

The fossils described are Jurassic or Cretaceous, Triassic, Carboniferous or Permian, Devonian or Carboniferous, from undoubted Devonian deposits, and from strata of unknown age. No new species are named.

Whiteaves, J. F. Notes on some Jurassic Fossils, collected by Mr. G. M. Dawson, in the Coast Range of British Columbia. <*Report of Progress of the Geological Survey of Canada for* 1876–77, pp. 150–159. 1878.

Twenty-eight forms of *Mollusca* and a species of *Serpula* are noted and more or less fully described, from the Jurassic deposits of British Columbia. *Pinna subcancellata* and *Trigonia dawsoni* are described as new.

Woodward, Henry. Notes on some Arctic Silurian Fossils from Beechey Island, brought home by the S. Y. "Pandora," 1875, and from Port Dundas, Lancaster Sound, by an Earlier Expedition in 1853. < *Geological Magazine,* new ser., Decade II, vol. v, pp. 385–390, pl. x. 1878.

Describes some Corals, *Alveolites? arctica* being new.

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DEPARTMENT OF THE INTERIOR.
UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY.
F. V. HAYDEN, U. S. GEOLOGIST-IN-CHARGE.

BULLETIN

OF

THE UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY

OF

THE TERRITORIES.

VOLUME V.....NUMBER 2.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
September 6, 1879.

ART. I.—Notes on the Aphididæ of the United States, with descriptions of species occurring west of the Mississippi. By Chas. V. Riley and J. Monell. pp. 1–32, pll. I, II.

EXPLANATION TO PLATE I.

[In all the figures the natural flocculence of the body is partly or entirely omitted, so as the better to show the structure. The natural sizes are also indicated in hair-line or by dots within circles.]

Fig. 1.—SCHIZONEURA AMERICANA: *c*, *c*, leaf showing curl—nat. size; *a*, winter egg; *b*, stem-mother; *d*, winged female; *i*, her antenna; *j*, her tarsus; *e*, true female, ventral view, showing solitary egg; *g*, her tarsus, from beneath; *f*, anus and genital points of male; *h*, antenna of 4th generation—all enlarged.

Fig. 2.—COLOPHA ULMICOLA: *a*, leaf showing galls from above and beneath—nat. size; *b*, impregnated egg surrounded by skin of true female; *c*, newly-born young of 2d generation, ventral view; *h*, its antenna; *d*, pupa of same, dorsal view; *e*, winged female; *f*, her antenna; *g*, antenna of stem-mother—all enlarged.

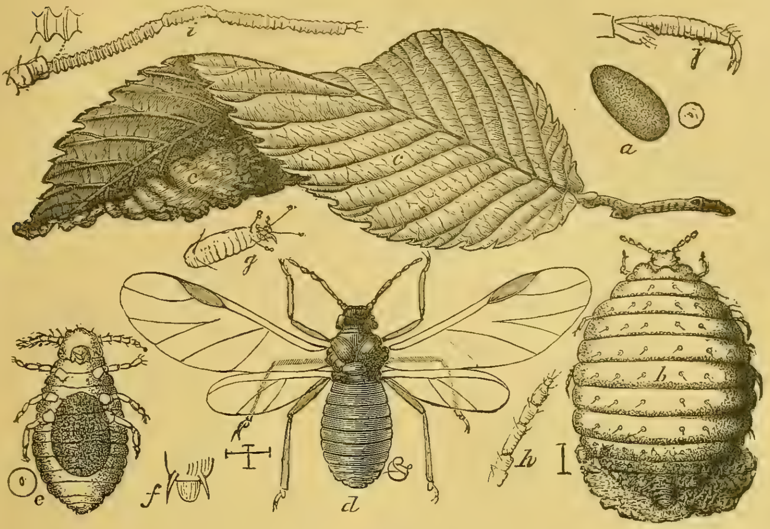

Fig. 1.

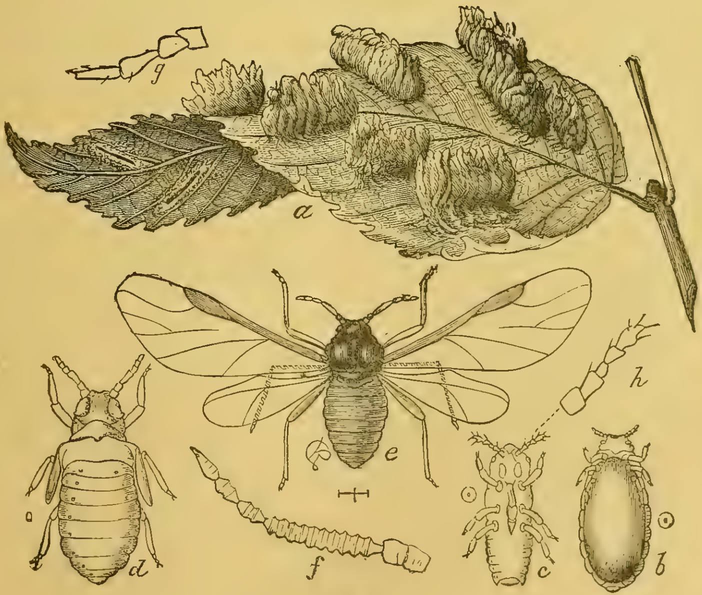

Fig. 2.

C. V. Riley, del.

Gall-making Pemphiginæ.

EXPLANATION TO PLATE II.

Fig. 3.—Pemphigus populi-monilis: *a*, winged female; *b*, her antenna; *c*, her antenna at birth; *d*, same after first molt; *f*, her tarsus; *e*, her issue at birth, ventral view—all enlarged; *g*, leaf showing galls—nat. size.

Fig. 4.—Hormaphis spinosus: *a*, gall—nat. size; *b*, winged female (the left wings showing abnormal venation); *c*, her tarsus; *d*, her antenna; *h*, frontal tubercle, as seen at birth; *e*, her issue at birth, ventral view; *f*, granulated surface of same; *g*, antenna of same—all enlarged.

Fig. 5.—Pemphigus populi-transversus: *a*, gall from side; *b*, same from beneath—nat. size; *c*, winged female (wings on left side detached); *d*, her antenna—enlarged.

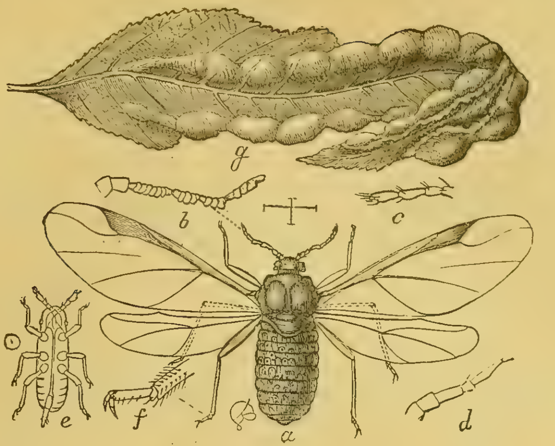

Fig. 3.

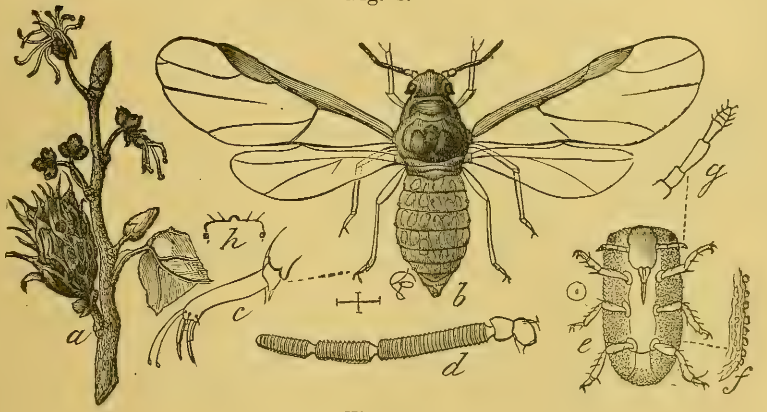

Fig. 4.

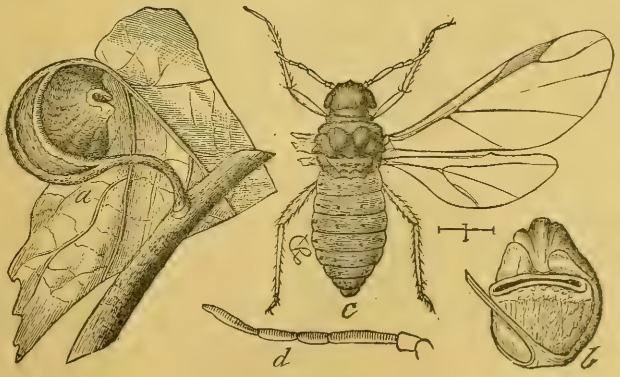

Fig. 5.

C. V. Riley, del.

Gall-making Pemphiginæ.

BULLETIN

OF THE

UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY
OF THE TERRITORIES.

VOLUME V. 1879. NUMBER 2.

Art. X.—On the Coatis (Genus Nasua, Storr).

By J. A. Allen.

Few of the terrestrial *Feræ* present a greater range of color-variation, wholly independent of sex and age, than do the species of Coati. Neither does the history of many groups afford so remarkable a record of malidentifications and consequent confusion and complication of synonymy. Before entering further upon the general subject, it may be stated that the number of species recognized by even comparatively recent authors varies from one to five, while the aggregate number of synonyms falls little short of thirty. The two valid species of the group were very early and simultaneously recognized, but later one of them was almost wholly lost sight of for nearly half a century, so that the names given to them by the early systematic writers were variously combined and almost indiscriminately referred by later authors to the various nominal species they respectively recognized. As preliminary to any attempt to discriminate the species, and for the purpose of elucidating the tables of synonymy given below, a somewhat extended historical summary of the literature of the subject may not be out of place.*

Brisson, in his "Règne Animal," in 1756, described two species of Coati under the names "Le Coati-Mondi" and "Le Coati-Mondi à queue annelée," which afterward became the basis respectively of Linné's *Viverra narica* and *Viverra nasua*. Brisson also described "Le Blaireau de Surinam—*Meles surinamensis*," which is also a Coati, referable to the species with an annulated tail. This later became in part the basis of Erxleben's *Viverra vulpecula*.[*] Only the first two of Brisson's three species above cited have special importance in the present connection. His diagnoses are so explicit as to leave no doubt respecting the particular species characterized, and they thus render Linné's *Viverra narica* and *V. nasua* perfectly determinable. Buffon also described and figured both species from specimens he was able to study in life, under the names "Le Coati brun" and "Le Coati noirâtre," corresponding respectively with Linné's *Viverra narica* and *V. nasua*. Schreber copied Buffon's plates and adopted Linné's names. He seems, however, to have had personal knowledge of both species, and takes pains to clearly point out their specific differences, alluding to the fact that both Buffon and Pennant considered *Viverra narica* as merely a "variety" ("blosse Spielarten") of *V. nasua*. Erxleben and Gmelin also adopted Linné's names, and correctly referred to them Brisson's and Buffon's species. G. Cuvier, in 1798, employed Buffon's vernacular names, but referred the species to the genus *Ursus*, retaining, however, the specific names given by Linné. Shaw, in 1800, gave *Viverra narica* as a "var.?", remarking that it had usually been considered as a variety of *Viverra nasua*, but adds: "It is, however, rather larger than the former [*V. nasua*], of a browner color, and without any annuli, or, at least, without any distinct variegations on the tail," thereby showing that he appreciated correctly some of the more obvious external characters of the two species. Up to this time the two species had not been confounded by systematic writers, and the references to Brisson and Buffon prove to have been correctly allocated.

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* The present revision of the group is based mainly upon the rich material contained in the National Museum, the whole of which has been unreservedly placed at my disposal by the Director, Professor Spencer F. Baird. I am also greatly indebted to Mr. Alexander Agassiz for the use of the material contained in the Museum of Comparative Zoölogy at Cambridge, Mass., which happily supplies important data that would have been otherwise inaccessible to me.

Desmarest, in 1817, apparently intended to adopt for the group Storr's generic name *Nasua*, of which he recognized three species, as follows: 1. "Le Coati, *Nasua quasje*, Geoffroy," to which he referred "*Viverra quasje*, Linn." (*i. e.*, Gmelin[†]), and Buffon's "le Coati noirâtre." 2. "Le

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[*] The *Viverra vulpecula* of Erxleben is one of those curious compositions so frequently met with in the works of the earlier systematists, particularly those of Linné, Erxleben, and Gmelin, based on the descriptions and figures of still earlier writers, especially those of Hernandez, Seba, Jonston, Brisson, Buffon, and Schreber. These compositions frequently embraced what, in the light of the present day, can be recognized as several widely diverse species, belonging not unfrequently to distinct families of animals. While some of the citations are still indeterminable with certainty, others may be readily identified. Erxleben's first citation under his *vulpecula* is "Yzquiepatl seu Vulpecula, quae Maitzium torrefactum aemulator colore *Hernand. Mex. p.* 332 *cum fig.* mediocr.", which is apparently the "Ichneumon de Yzquiepatl, seu Vulpecula Americana, quæ colore Maizium torrefactum æmulator" of Seba (Thesau. i, 1634, 68, pl. xlii, fig. 1), said to be "in America Quasje vocatur" and "vivum ad Surinam." The description and figure indicate an animal having some resemblance to a Coati, but is as likely to have been a Raccoon, and is certainly indeterminable with certainty. With it are combined Brisson's "Le Blaireau de Surinam," which is unquestionably a *Nasua*, and Buffon's "Le Coase" (Hist. Nat., xiii, pp. 288, 299, pl. xxxviii), which is beyond doubt the Pekan or Fisher of "Virginie," the *Mustela pennanti* of modern systematists, and (primarily) the *Viverra vulpecula* of Schreber, which Erxleben also quotes.

[†] Although various writers cite a "*Viverra quasje*, Linn.", the name originated with Gmelin (Syst. Nat., i, 87), whose first reference is: "V. castanea subtus flavescens, naso

Coati brun, *Viverra narica*, Linn.", to which he referred Buffon's "pl. 48" (the *same plate* is also referred to the preceding species!). 3. "Le Coati roux, *Viverra nasua*, Linn.", to which is referred Schreber's "pl. 118." In 1820 he made a still more thorough confusion of the species, of which he nominally recognized two, under the names *Nasua rufa* and *Nasua fusca*. His *N. rufa* is F. Cuvier's "Coati roux" (Hist. des Mam., livr. i), which is merely a red phase of the common *V. nasua* of Linné, while his *N. fusca* is a composition of Linné's *V. narica* with Marcgrave's "Coatimondi" (referred by Linné to his *V. nasua*), the Coati and Coati noirâtre of Buffon, and F. Cuvier's "Coati brun," which last is also referable to Linné's *V. nasua*.

F. Cuvier,* in 1817, nominally recognized two species, but really described only one, but confounded the synonyms of both. These are: 1. "Coati roux; *Viverra nasua* Linn." In his description of this he correctly says: "le queue est annelée de noir et de fauve." 2. "Coati brun; *Viverra narica*, Buff., pll. 47–48." In his description of this he says: "le queue est annelée de noir et de jaune sale," and therefore it is not the *Viverra narica* of Linné. Furthermore, in citing here both of Buffon's plates lxvii and lxviii, he confounds both of the Linnæan species under the name "*Viverra narica*," and fails altogether to recognize the true *narica*.

Desmoulins, in 1823, followed F. Cuvier in making two species, and while he adopted Linné's names he wrongly referred Schreber's plate cxviii to *Viverra nasua*, and cites *both* of Buffon's plates lxvii and lxviii under *V. narica*. Lesson, in 1827, simply followed Desmarest's nomenclature and determinations of 1820.

F. Cuvier, in the first livraison of his "Histoire des Mammifères," published in 1818, figured the red phase of the *Viverra nasua* of Linné under the name "Le Coati roux," and in the fourth livraison (1819) of the same work figured a pale fulvous variety and a pale brown variety under the titles, respectively, of "Coati brun femelle, variété fauve," and "Coati brun, femelle," and in the forty-eighth livraison (1825) figured still another variety under the name "Coati brun-foncé"; all of which are unquestionably referable to the Linnæan *Viverra nasua*.

In 1826, Prinz Maximilian published his "Beiträge zur Naturgeschichte von Brasilien," in which work he bestowed on Linne's *Viverra nasua* the name *Nasua socialis*, and added a second species as "? 2. *N. Solitaria*," and further indicated 3. "*? Nasua nocturna*." He calls attention to the great variability in color that the Coatis present, referring to the fact that in the common Coati, known in systematic works as

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producto, cauda annulata. *Syst. Nat.* X, p. 44." His second citation is: "Meles ex saturate spadiceo nigricans, cauda fusca annulis flavicantibus quasi cincta. *Briss. quadr. p.* 185." Whether the first reference relates to *Nasua* or to *Procyon* is hard to determine, but the second is simply Brisson's "Blaireau de Surinam." "Quasjo" is well known to be one of the native names applied to the Coatis in Surinam and some other parts of South America.

* Dict. des Sci. Nat., tome ix, 1817, p. 464.

"*Nasua rufa*," or "*Viverra nasua*," he had found red, gray, and brownish individuals in the same family. He therefore held all these animals for a single species till he learned from hunters that there were two, of which one was small and slender, and associated in numerous companies, while the other was larger, less slender, and lived singly or in families; the first being termed by the natives "Cuati de Bando"; the second, "Cuati Mundéo." Of the last, he says he had seen only a single example, yet he believed in its existence in consequence of the reports of the Brazilian hunters. He also says he regards it as unwise to name the species in reference to their color, as, for example, "*Nasua rufa* and *subfusca*," but deems it better to bestow names in reference to their modes of life. He accordingly gives the name *Nasua socialis* to the "Cuati de Bando" of the natives, of which he met with many specimens, and of which he gives a detailed description. He says this is the common variety, which has been named *Nasua rufa*, and which is sometimes of a purer, sometimes of a more brownish red. His *N. solitaria* is the "Cuati Mundéo" of the Brazilians of the eastern coast, but he expresses doubt respecting its specific distinctness from his *N. socialis*. He describes the body as entirely yellowish ash-gray, darker on the back, pale yellowish-red below and yellowish-brown on the sides; tail very pale grayish-red, annulated with blackish-brown. The single example seen by him, and which he describes, was an old male. Its larger size and stouter form, as compared with his *N. socialis*, described from female examples, as well as its different habits, have since been shown to be merely sexual or due to age. According to the Indians, this larger Coati (*N. solitaria*) agrees in habits with the other species, except that it lives singly or in families and is less social.

In commenting upon the general subject, he says it is certainly wrong to recognize three species of Coati, namely, "*Nasua rufa, obfusca*,* und *narica*," as Eschwege has done, or four, by adding Geoffroy's *Nasua*

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* Illiger is credited by Maximilian, Fischer, Gray, and others, with the names *Nasua monde* and *Nasua obfusca*, but neither of them gives references to the places of their occurrence. Gray, however, *incorrectly* adds, "Prodromus," but neither of these names occurs in Illiger's "Prodromus," where he merely recognized two species under the Linnæan names of *nasua* and *narica*. In his "Verzeichniss der in Süd-Amerika vorkommenden Gattungen und Arten," in his "Ueberblick der Säugthiere nach ihrer Vertheilung über die Welttheile" (Abhandl. Berlin. Akad. 1804–11), he enumerates eight "species" of *Nasua* as follows: "*Nasua Monde, minor, spadicea, Narica, Quasje?, Squash?, ? Cuja, ? canina*," but gives only the following means of identifying the new names. In reference to them he says: "Die Arten [der *Nasua*], von ähnlicher Farbe und Bildung, sind bei den Schriftstellern sehr verwirrt. Ob *Vulpecula, Quasje* und *Squash*, wirklich selbständige Arten, oder nur junge Thiere andrer Arten sind, kann man nicht mit Sicherheit bestimmen. Ich rechne noch *Mustela Cuja Molina* und *Gmelin*, und Zimmermann's Koupara, den *Canis sylvestris Seba Thesaur.* I. *Tab.* 30. *Fig.* 1, zu dieser Gattung." The memoir in question abounds in similar instances of the multiplication of names without formal characterization, five *South American* "species" of *Gulo*, for example, being enumerated in the same connection.

pusilla,* which he says is apparently a young animal. He adds: "Höchstens zwei Arten des eigentlichen Cuati kann man als in den von mir bereis'ten Gegenden einheimisch annehmen, wenn sie nicht auf eine reducirt werden müssen, die Farbe aber kann, meinen Beobachtungen zufolge, keine Species derselben bestimmen" (l. c., ii, p. 297). Finally, he concludes his article on the Coatis with an "Anmerkung," in which he says he has imperfectly learned of another animal which appears to belong to the group of Coatis, but which differs a little in its habits from the two species he has described. This is his "*? Nasua nocturna*, das *Jupará* oder nächtliche Cuati." The only skin he saw of this reputed animal, said to inhabit the great forests of the eastern coast of Brazil, was so imperfect that he was unable to determine certainly about the genus. It differed from the other described Coatis somewhat in color in being pale grayish-yellow above and pale yellowish-red below, and through the absence of color-rings on the tail, which was colored uniformly with the back. According to the Brazilian hunters, it lives during the day in holes in trees, and goes abroad only in the night, the hunters never seeing it in the daytime. It differs, he says, from the other Coatis, if indeed it really belongs with them, not only in its nocturnal habits, but in its soft, fine hair and uniformly colored ("ungefleckten") tail.

Wagner,† in 1841, united all the Coatis into one species, under the name *Nasua socialis*, but grouped his bibliographical references under the heads of two varieties, called respectively "var. *rufa* aut *fulva*," and "var. *brunea*." His view of the case may be best presented in his own words: "Die beiden Arten, welche aus dem gemeinen Cuati errichtet worden, sind weiter nichts als Farbenabänderungen, die sich, wie diess der Prinz von Neuwied und Rengger gezeigt haben, in einer und derselben Familie und in demselben Wurfe beisammen vorfinden, und weder vom Geschlecht, noch vom Alter, noch vom Klima bedingt sind."

Von Tschudi, a little later (1844–46), recognized five species in his "Fauna Peruana" (pp. 98–103), namely, the *Nasua socialis* and *N. solitaria* of Maximilian, and three new ones. The latter are *N. leucorhynchus*, *N. vittata*, and *N. montana*. He gives only two as found in Peru—*N. socialis*,‡ the usual or common species, and *N. montana*, known from a single specimen collected in the Peruvian Andes at an altitude of 8,000 feet above the sea. The *N. leucorhynchus*, von Tschudi states, is often brought by travellers from the interior of Brazil, but there is apparently good reason for questioning the correctness of the locality here assigned. Under this name is given a good description of Linné's *Viverra narica*—the first recognition of the species for nearly half a century, and the first detailed description. The *N. vittata* was based on a melanistic specimen collected by the traveller Schomburgk in the interior of Guiana, to which is referred the black variety of Coati mentioned by his brother in the "Annals of Natural History" (vol. iv, p. 431). The *N. montana* is also a melanistic type, without the usual white spots about the eyes. Four of von Tschudi's species are thus referable to the Linnæan *V. nasua*, and one to the *V. narica*.

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* A "*Nasua Quasje*, Geoffr. Collect. du Mus.", is cited also by Fischer, and Gray gives "*Nasua quasie*, Geoff. Mus. Paris"; but I cannot find that the name was ever published by Geoffroy.

† Schreber's Säugt., Suppl., ii, 1841, p. 165.

‡ As synonyms of *N. socialis* he cites *Viverra* "*nasuta*" and *V. narica* of Linné, and *Nasua rufa* and *N.* "*rufina*" of Desmarest.

Gray,* in 1843, revived the Linnæan name *narica*, but, although he cites as the first synonym "*Viverra narica*, Linn.," all his other citations, and doubtless all his specimens, are referable to Linné's *V. nasua*. He recognized two species, the other being "*Nasua rufa*, Desm.," by which he evidently intended the *Viverra nasua* of Linné. In 1864,† he formally reviewed the group of Coatis, recognizing three species, adding as new a "*Nasua olivacea*." He perpetuates the confusions of nomenclature and synonymy of his earlier notice, and, so far as can be determined by his descriptions, his material is all referable to the single Linnæan species *Viverra nasua*. In 1866‡ he added still another nominal species under the name *Nasua dorsalis*. In 1869, in his "Catalogue of Carnivorous, Pachydermatous, and Edentate Mammalia in the British Museum" (pp. 238–241), he gives the four species he had previously recognized as follows: 1. *Nasua rufa*; 2. *Nasua narica*; 3. *Nasua dorsalis*; 4. *Nasua olivacea*. The references under *N. rufa* are all pertinent to the *Viverra nasua* of Linné; those under *Nasua narica*, except the first three ("*Viverra Narica*, Linn. S. N. i. p. 64; Schreb. Säugeth. t. 119; *Ursus narica*, Tab. Elém. p. 113, 1798"), and the "*Nasua leucorypha* [lege *leucorhynchus*] Tschudi, Arch. für Naturg.", are also all referable to the same species, as are his own *N. dorsalis* and *N. olivacea*. To judge by his descriptions, as well as by the localities given, his material is also all referable to Linné's *Viverra nasua*, as all his species are described as having *annulated tails*. It would be unsafe, however, to assume, that the *Viverra narica* was unrepresented in the material at his command. Respecting his *N. rufa* and *N. narica* he says: "I have examined with care a series of skulls which are said to have belonged to these two species, but have been unable to discover any characters by which the skulls belonging to one species can be distinguished from those belonging to the other. . . . If I had only two or three skulls, I might have perhaps seen differences which I might have regarded as distinctions; but when a series of some twenty or more are examined, it is impossible to define any distinction." These suggestive remarks confirm me in the conclusion above expressed, that Gray had before him only skulls of *Viverra nasua*, for he certainly could not have failed to distinguish the skulls, or even the skins, of the true *V. narica* (*Nasua leucorhynchus*, von Tschudi) if he had had them.

Giebel§ in 1855, recognized two species, namely, *Nasua socialis* and

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* Cat. Mam. Brit. Mus., 1843, p. 74.

† Proc. Zoöl. Soc. London, 1864, pp. 701–792.

‡ Proc. Zoöl. Soc. Lond., 1866, p. 169, pl. xvii.

§ Säugethiere, pp. 749–751.

Nasua solitaria. To the first he virtually referred all the species of previous authors except *N. solitaria* of Maximilian, which alone constitutes his second species. This, however, as Hensel has shown, unquestionably relates only to old males of the common species.

In 1860, Weinland described and figured* a species of Coati from Vera Cruz, Mexico, under the name *Nasua solitaria* var. *mexicana.* The specimen was taken when two months old, and transmitted alive to the Frankfort Zoölogical Garden, and when described and figured was already nearly five years old. Weinland's detailed description of its external characters and his excellent figure, drawn and colored from the living animal, form the first definite information recorded in reference to the Mexican Coati. The species, however, is wrongly referred to Prinz Maximilian's *Nasua solitaria*, and although the author in his general history of the subject refers to von Tschudi's *Nasua leucorhynchus*, he failed to perceive that the example he here describes represented that species as well as the old Linnæan *Viverra narica.*

De Saussure, in 1862,† recognized two species from Mexico under the names *Nasua socialis* and *Nasua solitaria*, which, he says, bear respectively the native names "Tejon de manada" and "Tejon solo." Both are referable to the *Nasua leucorhynchus* of von Tschudi (= *Viverra narica*, Linné). He seems to have made here the same mistake respecting the Coatis of Mexico that Prinz Maximilian made in reference to those of Brazil, namely, that of describing the old males as a distinct species, adopting for it Maximilian's name *solitaria*, and retaining the same author's name *socialis* for the younger males and females; but the two supposed species to which De Saussure gave these names are not the two so named by Maximilian.

Von Frantzius, in 1869, stated‡ that the specimens collected by him in Costa Rica had been determined by Professor Peters to be the *Nasua leucorhynchus* of von Tschudi. He says that two species are recognized in Costa Rica under the names "Pisote solo" and "Pisote de manada," which are respectively the "einsame Rüsselbär" (*Nasua solitaria*, auct.) and the "gesellige Rüsselbär (*N. socialis*, auct.). But he says that all of the Costa Rican specimens that he had examined belonged to *Nasua leucorhynchus*, and he thinks it therefore probable that only this species occurs there, and that the so-called "geselligen Rüsselbären" are only the young and females of *N. leucorhynchus*, and not the *N. socialis.* Consequently he believes that *N. leucorhynchus* may be considered as the only representative of the genus in the Northern Tropics, and that *N. socialis* is restricted to the Southern Tropics. He further notes that the coloration of the Costa Rican species is very variable, the young being browner and the old animals more varied with blackish and white.

Hensel, in 1869, in his "Beiträge zur Kenntniss der Thierwelt Brasiliens,"* in his account of the Brazilian Coati, claimed that Maximilian's *Nasua solitaria* (the "Coati mondeo" of the Brazilians) was based merely on old males of the common species. He refers to the great sexual differences these animals present in respect to habits, as being the basis of a grave error committed by zoölogists, and to certain climatic differences in color. He even goes so far as to say: "Ich glaube, dass es nur eine einzige Art, die *Nasua socialis* gibt, wenigstens enthalten die Beschreibungen anderer nichts, was sich nicht auch bei der genannten Art vorfände."

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* Zoologische Garten, Jahrg. i, 1860, p. 189.

† Zoologische Garten, Jahrg. iii, 1862, pp. 53, 56.

‡ Arch. für Naturg., 1869, i, pp. 292–294.

In 1873,† however, he recognized two species, namely, *Nasua socialis* and *Nasua leucorhynchus.* The first he had found so abundant in Southern Brazil that he collected of it not less than two hundred skulls, as well as many skeletons. He states that from the comparison of these skulls, as from observation of the animal in a state of nature, it appears that the old males live solitary, and have been accounted a different species under the name *Nasua solitaria.* The Brazilian hunters, he says, also distinguish it as "Coati monde" from the common "Coati de vara," but at the same time recognize very well their relationship. Among his above-mentioned skulls were a considerable number of those of old hermits, or *solitaires* ("Einsiedlern"). At a particular time of life—that is to say, when the long canines begin to become worn—the old males leave the troops, of which, in company with the old and young females, they had hitherto formed a part, and afterward only run with them during the pairing season. One can tell, he says, with considerable certainty, by the skull, whether or not the animal had already left the troop. The males that run with the troops are, as shown by an examination of their skulls, not fully grown, so that size becomes a distinctive character of the old solitary males. It is difficult, he says, to find any difference in color between the two assumed species; and although he examined every example carefully, and with the object of finding two species, he was never able to find any color-differences. He further states that solitary *females* are never met with, unless, perhaps, they have been driven from the herd in hunting them.

He later refers to the fact that a considerable number of species have been recognized, but adds that, with one exception, he has no judgment to render respecting them. In Rio de Janeiro he saw an example in confinement, which he thought probably came from Bahia or Pernambuco, that was distinguishable by its reddish color. He thought it perhaps represented Desmarest's *Nasua rufa*, but to him it appeared to differ from the Southern *Nasua* only in its color, through the yellow being of a reddish tone.‡

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* Ibid., Jahrg. x, 1869, pp. 289–293.

† "Beiträge zur Kenntniss der Säugethiere Süd-Brasiliens," Abhandl. Königl. Akad. Wissensch. zu Berlin, 1872, (1873), pp. 63–67.

‡ In his former paper, in alluding to this subject, he says: "In Rio de Janeiro, in Bahia und Pernambuco sah ich gezähmte Coatis, an denen das Gelb der Haare dunkler war und einen röthlichen Ton hatte, so dass der Farbenton des ganzen Thieres auch

The second species he here admits is the *Nasua leucorhynchus* from Costa Rica, which, from a comparison of skulls sent him by Dr. von Frantzius, he found to be smaller* than *N. socialis*, the skull rounder, with the crests and ridges less developed, and the molar teeth thicker.

From the foregoing it will be seen that the two species of Coati owe their first introduction into systematic literature to Linné, who in turn derived them from Brisson and Buffon, by each of whom both were described at nearly the same date. It further appears that these species were properly defined (as far as they were then known) and clearly recognized by all the leading systematists, down to the early part of the present century, and that confusion and obscurity originated with the French encyclopædists, the two species being similarly more or less involved at the hands of both Desmarest and F. Cuvier in the year 1817, and that malidentification and confusion of synonymy have since been the rule. It furthermore appears that the Linnæan name *narica*, when used at all, has, since that date, covered only color-variations of the Linnæan *nasua*, and that the true *narica* of Linné finally became again specifically distinguished in the *leucorhynchus* of von Tschudi, and is at last currently recognized under that name as the second and only other valid species of the genus *Nasua*.

These two species may be briefly diagnosed as follows:

COMMON CHARACTERS.—Nose produced, terminating in a bald, cartilaginous snout; tail nearly as long as the body. Skull narrow, long, the frontal region elevated; palate prolonged backward; postorbital processes rudimentary in youth, well developed in old age; sagittal and occipital crests strongly developed in the males in old age, but the former permanently obsolete in the females. Incisors $\frac{3-3}{3-3}$, of moderate size, the outer upper separated from the others, and placed more posteriorly; canines $\frac{1-1}{1-1}$, all curved outward, greatly developed in the males, of moderate size in the females; the upper laterally compressed with cutting edges; the lower rather larger and subtriangular, with a deep longitudinal groove on the inner anterior border; premolars $\frac{3-3}{3-3}$; molars $\frac{3-3}{3-3}$. A small white spot above, another below the eye, and a third on the cheek ....Genus *Nasua* Storr.

DIFFERENTIAL CHARACTERS.—1. Nose and edge of upper lip white, in strong contrast with the dark brown of the cheeks and facial region; tail concolor with the back, or with obsolete half-rings on the lower surface of the basal half. Pelage long, soft, the long hairs of the dorsal surface tipped with rufous, fulvous, or whitish. Hinder portion of the palate angularly depressed medially...*narica*.

2. Nose and upper lip gray, uniform in color with the cheeks and facial region; tail conspicuously annulated with about 7 to 9 rather broad fulvous or rufous rings, alternating with dusky or black ones. Pelage generally short, harsh, shining, the long hairs of the dorsal surface usually black-tipped. Size smaller and nasal region of the skull narrower than in the preceding; palatal region also narrower, with its posterior portion flat—not sharply depressed in the middle, as in the preceding. Ears also rather longer and more pointed ......*rufa*.

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etwas röthlich war; allein im Uebrigen glichen sie ganz den Coatis des Südens und könnten höchstens als klimatische Farbenvarietät betrachtet werden."—*Loc. cit.*, p. 291.

* His Costa Rican specimens, as shown by his descriptions and measurements of them, were not fully grown, which accounts for his statement that the Costa Rican species is smaller, it being in reality larger.

NASUA NARICA, (Linné) Illiger.

MEXICAN COATI.

Le Coati-Mondi, BRISSON, Reg. Anim., 1756, 262.

Coati brun, BUFFON, Hist. Nat., viii, 1760, pl. xlviii.

Viverra narica, LINNÉ, Syst. Nat., i, 1766, 64. Based entirely on Buffon, as above.—SCHREBER, Säugth., iii [1776?], p. 438, pl. cxix (fig. from Buffon).—ERXLEBEN, Syst. Reg. Anim., 1777, 486.—ZIMMERMANN, Geogr. Gesch., ii, 1780, 291.—GMELIN, Syst. Nat., i, 1788, 86.—SHAW, Gen. Zoöl., i, 1800, 385 (given as a "var.?").—DESMAREST, Nouv. Dict. d'Hist. Nat., vii, 1817, 219.

Ursus narica, G. CUVIER, Tabl. Élém. d'Hist. Nat., 1798, 113.

? ? *Nasua nocturna*, MAXIMILIAN, Beitr. Naturges. Bras., ii, 1826, 298.

Nasua leucorhynchus, VON TSCHUDI, Fauna Peruana, 1844–46, 100.—FRANTZIUS, Arch. für Naturg., 1869, 292.—DUGÉS, La Naturaleza, i, 1869, 137.—HENSEL, Abhandl. Königl. Akad. Wissens. Berlin, 1872, (1873), 65.

Nasua socialis var. *fusca*, FISCHER, Synop. Mam., 1829, 149.

Nasua socialis var. *brunea*, WAGNER, Suppl. Schreber's Säugth., ii, 1841, 165.

Nasua socialis, DE SAUSSURE, Zoologische Garten, Jahrg. iii, 1862, 53.

Nasua solitaria var. *mexicana*, WEINLAND, Zoologische Garten, Jahrg. i, No. 11, Aug. 1860, 191, with a colored plate from life.—DE SAUSSURE, Zoologische Garten, Jahrg. iii, No. 2, Feb. 1862, 27 (habits), 54 (external characters).

Nasua solitaria, DE SAUSSURE, Zoologische Garten, Jahrg. iii, 1862, 54.

Bassaricyon gabbii, ALLEN, Proc. Acad. Nat. Sci. Phila., 1877, 267, pl. ii, animal (not *Bassaricyon gabbii*, Allen, *ibid.*, 1876, 20, pl. i, skull).

EXTERNAL CHARACTERS.—Nose, edge of upper lip, a spot below the eye, another above the eye, and a small spot on the cheek, white; a white line, more or less distinct, usually connects the white spot above the eye with the white nasal area; rest of the facial portion of the head blackish-brown; forehead, sides and top of the head, hind neck, and a triangular area over the shoulders, lighter brown, varying in different specimens, however, from dark brown to yellowish-brown, or even deep golden. In many specimens this more or less fulvous area has well-defined outlines, and terminates posteriorly in a triangular extension reaching nearly to the middle of the back; in others, it is less well defined, and has a more restricted extension posteriorly. The ears are broadly margined with whitish, with long brown hair externally at the base, which in winter pelage forms overhanging tufts that nearly cover the ears. The general color of the rest of the dorsal surface is dark brown, becoming darker posteriorly, and varying in different specimens from fulvous to blackish-brown, with the tips of the long hairs lighter and lustrous, varying in different specimens from nut-brown through fulvous to pale yellowish-white or silvery. The color of the tail is nearly uniform with that of the hind portion of the back, with the distal third darker or blackish. Faint annulations are often observable, *on close inspection*, particularly on the basal two-thirds of the lower surface, but they are apparently never conspicuous in the adults, and frequently specimens occur in which no traces of annulations can be detected. They appear to be more prominent in very young specimens than in those that are full grown, and to become obsolete in old age. They are, however, sometimes entirely absent in the young. Sides of the neck whitish, varying from fulvous-white to silvery, this color usually extending over the fore-limbs as far as the elbow, and posteriorly along the sides of the body; on the sides of the neck it often forms a well-defined patch extending upward to the ear. The thighs are also more or less whitish. Distal portions of the limbs dark brown, passing into blackish on the feet. Chin, to beyond the symphysis of the jaw, pure white; throat, breast, and anterior half of the ventral surface, whitish or grayish-white, more or less obscured by the brown of the basal portions of the hairs. The pure white of the chin is usually separated from the grayish-white of the throat by a dusky band, formed by the extension and confluence of the dark brown of the cheeks; this, however, is an extremely variable feature, being sometimes wholly absent, often indistinct, but sometimes very broad and prominent. The color of the ventral surface is variable, being sometimes wholly silvery, or grayish-white, or entirely dusky, with no whitish anywhere on the lower surface except on the chin and a patch of dingy or yellowish-white on the throat and breast. Usually the anterior half of the ventral surface is more or less whitish, through which the fuscous bases of the hairs show, the whitish surface-color being formed by the white tips of the hairs. A similar whitish or yellowish-white tint is seen over the inguinal region. On the chin, the hairs are short and white to the base; on the rest of the lower surface they are dusky at base and whitish at the tips, resulting usually in the production of a dingy gray.

The pelage is full, long, and soft, and the tail full and bushy. The hairs composing the whitish patches on the sides of the neck are usually longer than those of the adjoining parts.

Judging by the specimens in hand, there are no sexual differences in color, one of the darkest specimens of the series being a female.

In very young specimens, the pelage is softer and more woolly, with the look of immaturity usually characteristic of young animals. They show, however, the same facial markings as the adults. The annulations of the tail appear to be *generally* more strongly marked in the young, being, in some cases, quite conspicuous, but are sometimes *entirely absent.*

A series of fourteen skins from various parts of Mexico and Central America presents a wide range of individual variation in color, but not greater than most mammals present, and not nearly so great as is seen in *Nasua fusca.* There seems, also, to be a recognizable amount of geographical variation, the Mexican specimens being much lighter-colored than those from Guatemala and Costa Rica. The lightest-colored specimen of all comes from the Texan side of the Rio Grande, near Fort Brown. In this example (Nat. Mus., No. 12757, Dr. J. C. Merrill), the general aspect of the dorsal surface is yellowish-gray, with a large, whitish area on the sides of the neck, and much white along the sides of the body; below, strongly whitish throughout. The white eye-markings do not quite form a continuous ring, but the spot above the eye has a whitish band connecting it with the white nasal area. The pelage is very long and full, and the fulvous under-color of the dorsal surface shows strongly through the light tips of the long hairs.

A Mazatlan specimen (Nat. Mus., No. 9068, T. Bischoff) has the top of the head, back of the neck, and a long, triangular area over the shoulders, deep yellowish-brown or golden, and the whole upper surface is strongly fulvous, through the long hairs being tipped with this color. The white area on the nose is very broad; the two white eye-spots form a very broad, continuous ring around the eye, which is connected with the white nose-patch by a prominent stripe of the same color. The breadth of the white eye-ring above the eye is 15 mm. The white of the chin, throat, and breast forms a continuous area, and is of unusual purity. In very favorable lights, about four or five indistinct rings can be traced in the basal two-thirds of the tail; but on casual inspection the tail would be pronounced unicolor with the back, except that it has a blackish tip. A Colima (Mexico) specimen (Nat. Mus., No. 7228, John Xantus) presents the same general appearance as the Mazatlan specimen, except that the golden on the hind-head, nape, and shoulders has a more restricted area. The white on the nose is also much reduced, and the white about the eye only forms two small, wholly separated spots, the upper of which is connected with the white of the nasal region by a narrow, half-obliterated line. A specimen from Pacuare, Costa Rica (Nat. Mus., No. 12878, Jose C. Zeledon), has the face-markings nearly as in the Mazatlan specimen, but the ocular ring is interrupted at the posterior canthus of the eye. The yellow area of the nape and neighboring parts is less well defined than in either of the preceding, and has a redder cast. The dorsal surface, particularly posteriorly, is much darker, and the light tippings of the hairs are silvery on the sides, and rufous or reddish-brown over the shoulders and middle of the back. In other words, the specimen is much darker. The tail has obsolete rings and a dark tip, as in the others.

A specimen from Central Guatemala (Nat. Mus., No. 8622, Henry Hague), in general features greatly resembles the last, but the brown of the face is darker and the white markings more restricted, the eye-spots being small, widely separated, and wholly cut off from the white area on the nose. The posterior half of the dorsal surface and the tail are much darker (blackish-brown), but the sides of the body, from the head to the middle of the body, have the long hairs tipped for nearly half their length with silvery white, tinged more or less with yellow. A specimen from Talamanca, Costa Rica (Nat. Mus., No. 12197, José Zeledon), in much worn pelage, is very dark throughout, and, apparently owing to the wearing-off of the ends of the long hairs, shows none of the usual light tippings. This specimen is the darkest of the series: it shows trace of annulation in the tail. A specimen from Mexico (Nat. Mus., No. 7230, labelled "*Nasua leucorhynchus*, Tschudi, Mexique, Maison Verreaux") is deep blackish-brown throughout, the long hairs slightly tipped with light-yellowish over the shoulders, passing into silvery on the sides of the shoulders. Sides of the neck with a small area of white, over which the hairs are conspicuously lengthened; throat and fore limbs externally whitish; hind limbs nearly black, the long hairs lustrous black. The white face-markings are greatly restricted, the eye-spots being very small, and the white nasal area greatly reduced. The whole lower surface of the head posterior to the mandibular symphysis is deep blackish-brown, within which, just behind the oral angle, is a small white spot, enclosing the mandibular tuft of whiskers. This example (in full winter pelage) is a female that had apparently suckled young the previous year. In general appearance, the coloration in this example is similar to that of a melanistic Woodchuck (*Arctomys monax*). There is no white anywhere on the ventral surface, except on the chin, and a sprinkling of yellowish-white hairs on the throat. Another specimen from Las Cruces de Candelaria, Costa Rica (Nat. Mus., No. 9069, José Zeledon), collected during Dr. von Frantzius's explorations in Costa Rica, also in full winter pelage, is quite similar to the last, but has rather more white on the face, and less white on the sides of the neck and fore limbs, and the white on the lower surface is continuous from the point of the chin to the middle of the body, with no cross-band of brown across the posterior part of the lower jaw. There is no trace of annulations in the tail.

Another specimen from Costa Rica (Nat. Mus., No. 11405, J. Carmiol) differs remarkably from all the others. It is little more than half-grown, but the long hairs are worn off from the sides of the body posteriorly, and the pelage generally has a much worn aspect. In this specimen, the whole head is pale fulvous, including the parts usually white, but the usual face-marking can be dimly traced. The general color of the body is dark fulvous, lighter on the more worn parts. Over the shoulders and along the middle of the back, where the long hairs are intact, the color is darker, approaching chestnut, with short rusty tips to the long hairs. This example seems to represent in this species the *red* phase of *Nasua rufa*.

There are also in the collection two young specimens, apparently not more than two to three months old. One is from Tehuantepec (Nat. Mus., No. 9375, Prof. F. Sumichrast); the other from Belize (M. C. Z., No. 5542, Dr. H. Berendt). They present a general aspect of immaturity in the texture of the pelage and in the rather darker tone of the under color; but they have the same general markings as the adults, the facial pictura being the same, and the long hairs of the pelage being similarly tipped with yellowish. The tail is, however, more distinctly annulated, the annulations in the Tehuantepec specimen being very prominent. The hair on the tail is also rather short and woolly.

A still younger specimen from Jalapa, Mexico (M. C. Z., No. 2630, Montes-de-Oca), less than nine inches long (head and body), and probably not more than two or three weeks old, differs from those last described in having the whole dorsal surface nearly uniform brownish-black; in the pelage being wholly soft and woolly, the long lighter-tipped hairs having not yet appeared. The sides of the neck and the whole lower surface are uniform grayish-white, with no separating band cutting off the white of the chin from that of the throat. Lower surface of the tail for two inches at the base yellowish-white, crossed distally by two dark bars. In other respects, the tail is colored uniformly with the back, and shows no other trace of annulations. It consequently appears that in very young individuals the tail may be either entirely without annulations or have them quite conspicuous. The face presents the maximum extension of white, and agrees exactly with the very white-faced adult example from Mazatlan already described.

In the series of specimens above described there is a complete intergradation from the light grayish fulvous example from the Lower Rio Grande to the blackish-brown specimens from Central America, though simply an increased intensity southward in the coloration. At the same time, there is a wide range of purely individual variation in the size of the white face-marks, and especially in the coloration of the lower surface of the anterior half of the body. As previously stated, there appear to be no well-marked sexual differences of color.

SKULL.—A series of six adult skulls of this species (four males and two females), and three others from half-grown examples, shows that the skull varies greatly with age and sex. None of the male skulls are very old, the molar teeth being unworn, while one of the female skulls has the tubercles of the molars wholly worn away. Yet in this last the sagittal crest is wholly undeveloped, while the middle-aged males have well-developed crests, varying from 5 to 11 mm. in height. The male skulls are also larger, with much larger canines and more heavily developed and more widely spreading zygomata. The male skulls vary considerably in size, the smallest having a length (from front edge of intermaxillæ to posterior border of occipital condyles) of 119 mm. and a breadth (at the point of greatest expansion of zygomata) of 77 mm., against, respectively, 138 mm. and 81 mm. in the largest. The largest (but not the oldest) female skull has a length of 123 mm. and a width of 65 mm., showing that as regards the length of the skull some of the females exceed in size some of the males. The average of four male skulls, however, gives a length of 129 mm. and a width of 79 mm., against, respectively, 122 mm. and 63 mm. for the two female skulls. In the females, in addition to the very much smaller size of the canines and the entire absence of a sagittal crest, the zygomatic arches are much weaker and much less widely divergent.

GENERAL HISTORY AND SYNONYMY.—As already stated in the general history of the subject, the present species was described by Brisson in 1756 under the name "Le Coati-Mondi," and was redescribed and figured by Buffon in 1760 as "Le Coati brun." On the latter was exclusively based Linné's *Viverra narica*. Although the habitat of the specimens described is not stated by either of these authors, and was probably unknown to them,* Buffon's figure, as well as his and Brisson's descriptions, leave no reasonable doubt that the name *narica* was based on the Mexican Coati.† By writers of the first quarter of the present century, the present species was virtually lost sight of, for, although the name *narica* was more or less generally retained, it was applied to a nominal species referable to the Linnæan *Viverra nasua.* Fischer, while referring all the Coatis to one species, for which he adopted Maximilian's name *Nasua socialis*, wisely separated the references to the two valid species under the varietal names *rufa* and *fusca*, and under these heads made a judicious allocation of the synonyms of the group. The first possible synonym is the "*? Nasua nocturna*" of Maximilian (1826), based on an imperfect skin and the reports of the native hunters. He says the tail shows no color-rings, but has the same mingling of tints as the upper part of the body.‡ It has, however, the matter of locality against it, as well as the "fahl gelbröthliche Farbe" of the lower parts. He refers especially to its soft thick pelage, which corresponds well enough with that of the present species, but it may not be a *Nasua* at all, as he was himself in doubt as to whether it was really this genus, and as no subsequent explorer appears to have met with a *Nasua* in Eastern Brazil having the tail colored uniformly with the back.

Von Tschudi, however, in 1844–46, described a *Nasua leucorhynchus* which good authorities have since identified with the Mexican Coati. His diagnosis ("N. rostro albo, cauda corporis longitudine, concolore in adultis"), as well as his whole description, relates unquestionably to this form, which alone can be described as having a white nose and unicolored tail. He appears to have based his excellent description of the species upon an examination of quite a number of examples, as he alludes distinctly to young as well as adult specimens, and refers to various features of individual variation, and evinces a thorough knowledge of the species. He gives its habitat as the interior of Brazil, remarking: "Das Innere von Brasilien nährt diese dritte Species von *Nasua*, von wo sie von mehreren Reisenden nach Europa zurück gebracht worden ist." He thus evidently knew the species only through museum specimens or living examples seen by him in European cities, and as no writer appears to have yet given any other authority for its occurrence in Brazil, from which country it is still otherwise unknown,* the locality here assigned for the species may be fairly considered as open to question.†

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* Brisson says of his specimen, "Je l'ai vû chez M. *Lievre* Distillateur," without offering even a conjecture as to the country whence it came. Buffon simply tells us that the original of his Coati, figured in pl. xlvii, and of which is given a detailed account of the anatomy as well as a figure of the skeleton (in pl. xlix), is a specimen he had had alive, and that he had seen another Coati, of which he also gives a description and figures (pl. xlviii) as "Le Coati brun," without informing us whence either was obtained. The last is unquestionably the Mexican Coati.

† This species appears to have been thoroughly well known to Schreber, as his whole account most emphatically shows, in evidence of which, but especially from its historic interest, I transcribe the following from his account of *V. narica:* "Die Schnauze, Lippen und Kehle weislich. . . . Der Kopf, Hals und Leib graubraun; so auch der Schwanz, der, besonders unterwarts, undeutliche dunklere Ringe hat: die untere Seite des Halses, die Schultern, Brust und der Bauch weislich; der Raum zwischen den Hinterschenkeln fast gelb. Jedes Haar ist in der Mitte schwarz, an der Spitze gelbbraun. . . . Das Vaterland ist südliche Amerika. . . . Nach Europa kömmt es weit seltener, als das rothe [*V. nasua*]."—*Säugt.*, Th. iii, p. 438.

‡ "Der Schwanz zeigt keine farblichen Ringe, sondern ist von derselben Mischung wie die oberen Theile des Körpers."

Weinland, in 1860, was the first recent writer to describe and figure the Mexican Coati, but he regarded it as specifically identical with the South American species, of which he made it a variety, calling it *Nasua solitaria* var. *mexicana*. De Saussure, two years later, distinguished two species of Mexican Coati, adopting for them Maximilian's names *Nasua solitaria* and *Nasua socialis*, neither of which names have any relation to the Mexican animal. His detailed descriptions and comparison of two specimens, one in winter pelage and the other presumed by him to be in summer pelage, show that his two species were based merely on characters of individual variation, the one referring to the light phase and the other to the dark phase of the species.‡ Later Dr. von Frant-

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* Schreber, however, should perhaps be excepted, as he says the habitat of *V. narica* is "südliche Amerika," but which may or may not mean *South* America.

† Dr. Günther, in the "Zoölogical Record" for 1869 (p. 17), appears to accredit the species to Peru, as he says "*Nasua leucorhynchus* from Peru occurs also in Costa Rica," etc., but I have yet to meet with any authority for its occurrence in Peru.

‡ I append herewith a translation of De Saussure's remarks respecting the question of whether one or two species exist in Mexico.

"In Mexico," he says, "the same view prevails among the natives respecting the question of the existence of two species of Coati as in South America. They are distinguished by the names *solitaria* and *socialis* (Tejo solo and Tejo de mannada) given by Prinz von Neuwied in his Fauna of Brazil.

"Whether this discrimination is arbitrary and rests upon error, as the majority of authors appear to accept, or is well founded, will be here more closely examined.

"I will first mention that the Coatis of Mexico appear to me to be entirely identical with those of Brazil, and in order to compare the two types I subjoin detailed descriptions.

"*Nasua solitaria* is larger, of a darker color, than *socialis*, but still pretty similar to it, and for this reason they are united, being regarded as merely variations of age, the species *solitaria* as old males, which seclude themselves from the small troops in which *N. socialis* live, as do the old deer, wild boars, and elephants. I myself long shared this opinion, but a thorough investigation of the matter induced me to entirely change my view.

"The principal reasons which to me appear to indicate the propriety of separating the two species are the following:

"First of all, *Nasua solitaria* is by no means scarce, though difficult to obtain, as are usually the old male swine. They are as often killed as *socialis*, which circumstance entirely removes the suspicion that *solitaria* is nothing but old males, which become *solitaria* when they leave the younger animals, or at least from their second or third year. *Finally, I have seen in Mexico the self-same* Nasua *which has been described and figured from life.* This individual belonged to Dr. Müller, whom I fortunately happened to meet in Mexico, and whose Coati I directly compared with those which I had living in my possession. Although all these Coatis at that time were young, and therefore far from zius (in 1869, on the identification of Dr. Peters) and Hensel (1873) recognized the Mexican Coati as specifically distinct from the common South American species, adopting for it Maximilian's name *leucorhynchus*. This name, however, is antedated by the Linnæan name *narica*, which must take precedence for the species.

In addition to the above complication of synonymy, I had the mortifying misfortune, in 1877, to add another, by describing and figuring a skin under the name *Bassaricyon gabbii*,* supposing it at the time to be the skin belonging to the skull previously figured and described by me† under that name. Without going into details respecting the attenuating circumstance of the case, or how I was led into such an egregious blunder, I will merely state that the skin described and figured as that of *Bassaricyon gabbii*, as above cited, has nothing whatever to do with that species, but is simply the Mexican Coati, *Nasua narica*, and that the external characters of the true *Bassaricyon gabbii* remain still wholly unknown.

GEOGRAPHICAL DISTRIBUTION.—The first recent mention of the Coati as an inhabitant of Mexico appears, as previously noted, to have been made by Dr. Weinland in 1860, who states, on the authority of Dr. Müller, that it is common over the whole of the eastern slope of the high tablelands, or "Terra templada," but does not occur in the "Terra calienta" of the coast region. He adds that, notwithstanding this, he finds no previous mention of its occurrence. De Saussure, in 1862, endorses Dr. Weinland's statement that previous writers had made no mention of the occurrence of the Coati in Mexico, although, he says, it is one of the commonest mammals of that country. Tomes, in 1861, gives *Nasua fusca* in the list of mammals collected in Guatemala by Mr. Salvin, but without comment. Dr. von Frantzius, in 1869, refers to *Nasua leucorhynchus* as of common occurrence in Costa Rica. These are the only references to its distribution I have met with that I consider as of unquestionable authenticity. As already stated, owing to the absence of all reference to the occurrence, in South America, of a species of Coati with a white nose and unicolored tail, except von Tschudi's statement that his *N. leucorhynchus*

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being fully developed, we found them still very different. Dr. Müller's (now in the Zoölogical Garden of Frankfort) had already all of the characters of *N. solitaria*, while mine, on the contrary, belonged to the type of *N. socialis*, which sufficiently showed that the differences are not merely those of age.

"To show what they are the following descriptions of both types are given, based on many individuals, either stuffed or in skins, which I brought from Mexico."—*Zoologische Garten*, Jahrgang iii, 1862, pp. 52–53.

Very detailed descriptions of both species then follow, from which it appears that his "*N. socialis*" is merely the lighter-colored and his "*N. solitaria*" the darker phase of the common *N. narica*; and, furthermore, that M. De Saussure could not have been very familiar with the characters of the Brazilian species. I will here observe that in all probability the "Tejo solo" of the Mexicans, like the "Pisote solo" of the Costa Ricans, and the "Coati mondeo" of the Brazilians, as shown by von Frantzius and Hensel, was given to the old solitary males.

*Proc. Acad. Nat. Sci. Phila., 1877, p. 267, pl. ii.

†Proc. Acad. Nat. Sci. Phila., 1876, p. 20, pl. i.

inhabits the interior of Brazil, I deem it probable that the assigned locality of the latter is erroneous, and that his specimens really came from Mexico or Central America.

My own material indicates that the range of this species extends from the Isthmus of Panama northward throughout Central America and the greater part of Mexico, as far northward on the eastern coast as the Texas side of the Lower Rio Grande, and on the western coast probably northward nearly to California. I have specimens, however, from that coast only from as far north as Colima and Mazatlan.

Nasua narica appears hence to prevail from the Isthmus of Panama northward throughout Central America and the warmer parts of Mexico, where it also seems to be the sole representative of the genus.

NASUA RUFA, Desmarest.

Brazilian Coati.

Coati, MARCGRAVE, Hist. Nat. Brasil., 1648, 228.

Coati, VALMONT DE BOMARRE, Dict. Rais. Univ. d'Hist. Nat., ii, 1775, 596.

Le Blaireau de Surinam,—Meles surinamensis, BRISSON, Reg. Anim., 1756, 255.

Quasje, SCHREBER, Säugt., iii [1766 ?], 441 (=*Meles surinamensis*, Brisson).

Le Coati-Mondi à queue annelée, BRISSON, Reg. Anim., 1756, 263.

Coati noirâtre, BUFFON, Hist. Nat., viii, 1760, 358, pl. xlvii.

Viverra nasua, LINNÉ, Syst. Nat., i, 1766, 64. Based entirely on Marcgrave's "Coati" and Brisson's "Coati-Mondi à queue annelée."—SCHREBER, Säugth., iii [1776 ?], 436, pl. cxviii (fig. from Buffon).—ERXLEBEN, Syst. Reg. Anim., 1777, 485.—ZIMMERMANN, Geogr. Gesch., ii, 1780, 290.—GMELIN, Syst. Nat., i, 1788, 86.—SHAW, Gen. Zoöl., i, 1800, 386.—F. CUVIER, Dict. des Sci. Nat., ix, 1817, 464.—DESMAREST, Nouv. Dict. d'Hist. Nat., vii, 1817, 219.—DESMOULINS, Dict. Class. d'Hist. Nat., iv, 1823, 146.

Ursus nasua, G. CUVIER, Tabl. Elém. d'Hist. Nat., 1798, 113.

Viverra vulpecula, ERXLEBEN, Syst. Anim., 1777, 490 (in part, as it includes "Le Blaireau de Surinam, *Meles surinamensis*," Brisson; not *Viverra vulpecula*, Schreber, which is primarily Buffon's "Le Coase"=*Mustela pennanti*).

Viverra quasje, GMELIN, Syst. Nat., i, 1788, 87 (in part).

Nasua quasje, DESMAREST, Nouv. Dict. d'Hist. Nat., vii, 1817, 217 (certainly in part, as it includes Buffon's "Coati noirâtre").

Viverra narica, F. CUVIER, Dict. des Sci. Nat., ix, 1817, 464 (not of Linné).—DESMOULINS, Dict. Class. des Sci. Nat., iv, 1823, 246 (mainly).

Nasua narica, GRAY, Cat. Mam. Brit. Mus., 1843, 74 (in part); Proc. Zoöl. Soc. London, 1864, 702 (in part only); Cat. Carn., Pachy., and Edent. Mam. Brit. Mus., 1869, 239 (excluding part of the synonyms). Not *Viverra narica*, Linné.

Quachi, VALMONT DE BOMARRE, Dict. Rais. Univ. d'Hist. Nat., iv, 1775, 577.

Coati roux, F. CUVIER, Hist. Nat. des Mam., livr. i, 1818.

Nasua rufa, DESMAREST, Mam., 1820, 170 (based on the "Quachi" of Bomarre and "Couti roux" of F. Cuvier as above, but mainly on the latter).—LESSON, Man. de Mam., 1827, 139.—GRAY, Cat. Mam. Brit. Mus., 1843, 74 (in part only); Proc. Zoöl. Soc. Lond., 1864, 701 (in part only); Cat. Carn., Pachy., and Edent. Mam. Brit. Mus., 1869, 239.

Nasua fusca, DESMAREST, Mam., 1820, 170.—LESSON, Man. de Mam., 1827, 139 (mainly).—SCHOMBURGK, Ann. Nat. Hist., iv, 1839, 431 (habits).

? *Tamandua*, BUFFON, Hist. Nat., Suppl., iii, 1776, 284, pl. lvi (based on a Coati said by Cuvier to have been artificially colored).

Myrmecophaga striata, SHAW, Gen. Zoöl., i, 1800, 51 (=Buffon's "Tamandua" as above).

"*Myrmecophaga*, KRUSENSTERN, Voy. autour du Monde."

Myrmecophaga annulata, DESMAREST, Mam., 1822, 374 (=*Myrmecophaga*, Krusenstern, as above).

Tamandua, annulated var.?—*Myrmecophaga tetradactyla*, L.?, GRIFFITH'S Cuvier's Anim. Kingd., iii, 1827, 305, pl. (original figure from a stuffed specimen*).

Nasua socialis, MAXIMILIAN, Beitr. Naturg. Bras., ii, 1826, 283.—SCHINZ, Nat. u. Abbild. d. Säugt., 1826, 110, pl. xxxiii (from nature).—VON TSCHUDI, Fauna Peruana, 1844–46, 98.—BURMEISTER, Syst. Uebers. der Thiere Brasil., 1854, i, 120 (excluding from synonymy *Viverra narica*, Linn.).—GIEBEL, Säugeth., 1855, 750 (in part only; includes *Viverra nasua*, *V. narica*, Linn., *V. quasje*, Gmel., *Nasua rufa* and *fusca*, Desm., *N. leucorhynchus*, von Tschudi, etc.).—WEINLAND, Zoologische Garten, 1860, 61.—HENSEL, Zoologische Garten, 1869, 290 (habits, the chase, individual and climatic variations, etc.); Abhandl. König. Akad. Wissens. Berlin, 1872, (1873), 63.

Nasua socialis var. *rufa*, FISCHER, Synop. Mam., 1329, 148.

Nasua socialis var. *rufa* aut *fulva*, WAGNER, Suppl. Schreber's Säugth., ii, 1841, 165.

Nasua solitaria, MAXIMILIAN, Beitr. Naturg. Bras., ii, 1826, 292 (old males).—FISCHER, Synop. Mam., 1829, 149.—VON TSCHUDI, Fauna Peruana, 1844–46, 99.—BURMEISTER, System. Uebers. der Thiere Bras., 1854, i, 121.—GIEBEL, Säugeth., 1855, 751. (These notices are all of them compiled, and are based on Maximilian's description of the single original specimen, namely, an old male of the common Coati.)—SCHMIDT, Zoologische Garten, Jahrg. iii, No. 2, Feb. 1862, 32.

Nasua vittata, VON TSCHUDI, Fauna Peruana, 1844–46, 101.

Nasua montana, VON TSCHUDI, Fauna Peruana, 1844–46, 102, pl. v.

Nasua olivacea, GRAY, Proc. Zoöl. Soc. Lond., 1864, 703; Cat. Carn., Pachy., and Edent. Mam. Brit. Mus., 1869, 241.

Nasua dorsalis, GRAY, Proc. Zoöl. Soc. Lond., 1866, 169, pl. xvii; Cat. Carn., Pachy., and Edent. Mam. Brit. Mus., 1869, 240.

"*Le Coati Mondi*, PERRAULT, Anim., ii [about 1668], 15, pl. xxxvi." See "Mém. Acad. Roy. des Sci., dep. 1666–1699," probably tome ii.

Brazilian Weesel, PENNANT, Syn. Quad., 1771, 229; Hist. Quad., ii, 1793, 61 (in part only).

Cuati, AZARA, Hist. Nat. Quad. Paraguay, i, 1802, 293.

Coati roux, mâle, F. CUVIER, Hist. Nat. des Mam., livr. i, 1818.

Coati brun, femelle, F. CUVIER, Hist. Nat. des Mam., livr. iv, 1819.

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* Dr. Gray says (Proc. Zoöl. Soc. Lond., 1864, p. 701), "Mr. Turner (P. Z. S., 1851, p. 218) professes to have rediscovered the fact (though it is stated in the 'Catalogue of the Mammalia in the British Musium,' p. 74, 1843), that Krusenstern's *M. annulata* is only a *Coati-Mondi;* but he is puzzled to explain the figure in Griffith's 'Animal Kingdom.' This figure is engraved from a drawing of Major Hamilton Smith's, *no doubt copied from Krusenstern's figure, but altered and improved,* as was his habit when making his very large collection of drawings—a bad habit, that has rendered them of comparatively small value for scientific purposes, as it is impossible to determine whether they are from a figure or a specimen."

In reference to the line I have italicised in the above passage, I quote the following from the text (l. c., pp. 305, 306) accompanying Hamilton Smith's figure: "The figure we have engraved, under the title of the Tamandua annulated variety? seems likely to be the same as that indicated by the circumnavigator [Krusenstern], differing principally in the absence of the dark spot round the eye. This was also drawn [like the plate preceding the one in question] from a stuffed specimen, and is subject to the same observations as to the position of all the feet as that last mentioned ["Ursine Anteater"]."

Coati brun, femelle, variété, F. CUVIER, Hist. Nat. des Mam., livr. iv, 1819.
Coati brun-foncé, F. CUVIER, Hist. Nat. des Mam., livr. xlviii, 1825.
Coati de Bando of the Brazilians.
Coati mundeo (old males), ibid.
Gesellschaftliches Cuati, MAXIMILIAN, l. c.
Einsames oder grösstes Cuati (old males), ibid.
Nasenthier, *Nasenbär*, *Schnauzenbär*, *Rüsselbär*, *Frettbär*, and *Rüsselträger* of German writers.
Coati and *Coati-Mundi* of English and French writers, etc.
Cuati of the Spanish writers.
Quasie of the Northern Indian tribes of South America.

EXTERNAL CHARACTERS.—Eye and cheek-spots nearly as in the preceding, but of a soiled white (brownish-white or yellowish-white) color; sometimes obsolete, and usually less strongly contrasted with the surrounding tints, and with no white on the nose, which is colored uniformly with the sides of the head and frontal region. Head (excepting the whitish spots already noted), including facial region, gray, varied with blackish, particularly on the sides of the nose. General color of the dorsal surface, and of the limbs externally, gray, the former more or less strongly varied with black and fulvous, or rust-yellow. Whole lower surface, and the limbs internally, yellowish-white, varying to strong fulvous, or even gamboge-yellow. The hairs of the back are usually black at the surface, with a broad subterminal bar of fulvous, varying often to rufous, and brown at the base, like the softer under-fur. Tail black, with about eight (seven to nine) rather narrow fulvous rings.

The color varies greatly in different individuals, through the greater or less amount of black tipping the hairs of the dorsal surface present, and in the amount and tone of the under-color. A specimen from Brazil (M. C. Z., No. 2820, Thayer Exped.) has the prevailing color above shining black, varied with grayish-fulvous. Another (M. C. Z., No. 1839, Manaos, Brazil, Thayer Exped.) has the dorsal surface shining black, varied with deep yellowish-rufous. Still another (M. C. Z., No. 1440, Manaos, Brazil, Thayer Exped.), about half-grown, has the middle of the back strongly blackish, and the sides dingy yellowish-brown varied with blackish. In these the pelage is short, crisp, and shining. Two other specimens (Nat. Mus., No. 4657 and No. 2978), one certainly and the other probably, from Paraguay (Corrientes, Captain Page), has the pelage long, soft, and full, and the surface tint pale yellowish-gray, with a narrow subterminal zone of black, and the basal portion pale yellowish-brown. Another specimen (Nat. Mus., No. 3996, locality not given) has the dorsal surface dark red or intense chestnut, darkest along the middle of the back, especially posteriorly, and lighter on the sides, passing into fulvous on the lower surface. The tail is dark reddish chestnut, with narrow rings of blackish. The usual face-markings are faintly distinguishable. This specimen seems to represent the Coati roux of F. Cuvier.

Occasionally specimens occur in which the face is marked more or less distinctly with broad indistinctly defined longitudinal bands of whitish and dusky or even black, with an indistinct transverse blackish band through the eye. In one example thus marked the usual whitish face-markings are obsolete.

As already noted, writers who have observed the animal in a state of nature refer to great variability of color in even individuals of the same litter. In some specimens, the white facial markings are obsolete, as in von Tschudi's *Nasua montana*. Melanistic examples appear to be not unfrequent, and there is also a strong tendency to erythrism, in which the whole pelage is more or less reddish, even to the base of the hair, and unvaried by other tints save the blackish rings on the tail; at other times, the middle of the back posteriorly is blackish, as are also the sides of the nose.

SKULL.—A series of eight skulls of this species, mostly from Santa Rita, Southern Brazil, indicates a considerable amount of both sexual and individual variation. The females are smaller than the males, with relatively very much smaller canines. Two male skulls from Santa Rita (M. C. Z., Nos. 1000 and 1001, Thayer Exped.) measure respectively as follows, the smaller being much the older: length (from front edge of intermaxillæ to posterior border of occipital condyles) respectively 127 mm. and 115 mm.; breadth (at point of greatest expansion of zygomata) respectively 73 mm. and 74 mm. An adult female skull (M. C. Z., No. 999, Santa Rita, Brazil, Thayer Exped.) measures 110 mm. by 61 mm. Dr. Hensel states that the maximum length (measured as above) of a series of thirty-four old male skulls is 126 mm., and the minimum 112 mm.; and of the "normal skull" 118 mm. He gives the maximum length of a series of forty-nine old female skulls as 114 mm.; minimum, 103 mm.; "normal," 107 mm.

GENERAL HISTORY AND SYNONYMY.—A more complicated case of synonymy than that presented by the present species is rarely to be encountered. The introduction of the species into literature can be traced back to Marcgrave (1648), and even Thevet (1558), but the first important reference is that by the former, which became, in conjunction with Brisson's "Coati-Mondi à queue annelée" (1756), the basis of the Linnæan *Viverra nasua*. The "Coati noirâtre" of Buffon (1760) is unquestionably the same animal on which was based the first figure of the species under that name, published by Schreber in 1776. Under this title, and unmixed with any other species, the present species was currently known until about 1817, when F. Cuvier and Desmarest introduced confusion by losing sight entirely of Linné's *Viverra narica*, their *Viverra narica* being merely a color-variety of the present species. The last-named author also introduced a third nominal species referable to the present one under the name *Viverra quasje*. For the next fifty years the *narica* of those authors who used the name is referable to the *nasua* of Linné. In 1820, Desmarest abandoned both of the Linnæan names *nasua* and *narica*,—the first in consequence of Storr's adopting the name *Nasua* (in 1780) as the generic name of the Coatis,—and introduced the names *rufa* and *fusca*, both of which, as already shown, are referable to the *V. nasua* of Linné. Maximilian, in 1826, deliberately ignored all the prior specific names, and introduced in their place *socialis* and *solitaria*, both based on the present species, although by some subsequent writers the latter was adopted for the Linnæan *narica*. Von Tschudi, in recognizing five species of the genus *Nasua*, added two new synonyms to those of the present species.

The changes that have been rung on the various names above enumerated, especially *socialis* and *solitaria*, are sufficiently indicated in the above table of synonymy, and in the general history of the literature relating to the group already given (*antèa*, pp. 153–162). Other synonyms of less prominence, although of earlier origin, are the *Viverra vulpecula* of Erxleben, already mentioned as a curious compound of several widely diverse species, including one unquestionably referable here. It is apparently primarily based on Brisson's "Blaireau de Surinam," which is unquestionably the present species, but also included Buffon's "Coase," which is the Fisher or *Mustela pennanti* of recent authors. Gmelin's *Viverra quasje* had in part the same origin, since it also included Brisson's "Blaireau de Surinam." Other less important or less prominent synonyms are Desmarest's *Myrmecophaga annulata* and the "*Myrmecophaga tetradactyla*, L.?," of Griffith's Animal Kingdom. Among later synonyms are Gray's *Nasua olivacea* and *N. dorsalis*, which relate only to particular phases of coloration.

The Linnæan specific name *nasua* having become untenable through its adoption in a generic sense, the first name strictly eligible, though by no means eminently appropriate, as it had originally reference to only a prominent color-variety of the species, is that of *rufa* of Desmarest. *Socialis*, applied later to the species in a broader sense, is otherwise not especially distinctive, and is antedated by both *rufa* and *fusca* of Desmarest, as well as by the barbarous term *quasje*.

GEOGRAPHICAL DISTRIBUTION.—The present species appears to range over the greater part of the continent of South America—certainly from Surinam to Paraguay, and from the Atlantic coast to the Andes,—over which extensive region it is one of the most abundant of the carnivorous mammals, and apparently the sole representative of its genus. The first suggestion as to the correct limits of the habitat of the present species seems to have been made by Dr. von Frantzius in 1869, as already cited, he claiming that in all probability the present species did not occur in Costa Rica, and was therefore limited to the Southern Tropics, as the Costa Rican species doubtless was to the Northern Tropics. The exact boundaries of the habitat of either species still remain to be determined, as well as also whether the two species anywhere occur together.

Art. XI.—On the Present Status of Passer domesticus in America, with Special Reference to the Western States and Territories.

By Dr. Elliott Coues, U. S. A.

Now that the enormous increase and rapid dispersion of the European House Sparrow in America have resulted in the appearance of this objectionable bird in various portions of the Western States and Territories, it is time to consider what means may be taken to check its westward extension; for the agriculturists of that portion of our country have already enough to do to contend with the grasshopper scourge without having to guard their crops against a plague only less formidable and imminent. Should the noxious birds become as numerous and as widely diffused in the West as they are already in the thickly-settled portions of the United States, they would there prove even more destructive to the crops than they are known to be in the East. For here they still live for the most part in cities, towns, and villages, where they derive their subsistence chiefly from street-garbage, especially horse-manure; but in the West, where such supplies are more limited, these granivorous birds would at once and continually prey upon the crops. I am not informed to what extent they may have multiplied already in some of the places, as at Salt Lake City, to which they have been transported, and where they have obtained a foothold; but it may not be too late, if vigorous measures are taken at once, to stamp out the plague. The strongholds of the birds are few, comparatively speaking, and isolated to such a degree that the eradication of the birds from that part of the United States may not be now absolutely impracticable, as unfortunately seems to be the case in the East. The Great Plains offer a natural barrier to the westward progress of the birds from the Mississippi; and if pains be taken to destroy the advance guard as fast as they move westward, the evils now suffered in the East may be long delayed or even avoided. In most parts of the West where the Sparrows have appeared, it is believed that they have been imported, not that they reached these spots by spontaneous migration or natural dispersion. If this be the case, indeed, it may not be a matter of the greatest difficulty to destroy them, root and branch, in the comparatively few places in which they have already become naturalized. Should this be done, and laws be passed prohibiting the introduction of the birds into the Western States and Territories, immunity from invasion might be secured for a practically unlimited period. To bring this matter to the attention of the people in the West, and to urge that such measures be taken without further dangerous delay, is the object of the present paper.

This may seem an extreme course, to the few who still look favorably upon the presence of the Sparrow in America; but such may be assured that it is no more than the exigencies of the case demand. Unless the Sparrows can be made to devour grasshoppers, there is absolutely no occasion for their naturalization in the West, not even the flimsy excuse for them that we sometimes hear made in the East. That they will not subsist upon grasshoppers to any extent, or upon potato-beetles, may be regarded as a foregone conclusion; and in the absence of other sources of food-supply, they will infallibly fall upon the crops.

Though it must appear to all well-informed persons a work of supererogation to point out what mischief the Sparrows have done, what worse evils are in prospect, and what thoroughly undesirable birds these are from every standpoint, yet the people of the West may not be fully apprised as yet of the actual state of the case. Their attention is therefore called to the present status of the Sparrow in America, as fully exhibited in the following review of the situation.

For it occurs to me that the facts in the case can in no way be more forcibly presented or more clearly illustrated than by the simple and lucid method of setting forth, in sufficient detail, the controversy which the introduction of the Sparrow into America has occasioned, and analyzing the mass of evidence we have accumulated. To such a record, moreover, attaches a degree of historical interest. Instead of expressing my own views, or of preparing statements which might be open to an even unfounded charge of prejudice, I have therefore thrown what I have to say into the form of a commentary on the record itself, leaving each one to form his own opinion on the subject.

The following record forms a portion of a more elaborate article which I have in preparation upon the general subject. Though very incomplete,—in fact, representing but a fragment of the literature which the Sparrow Question has occasioned,—it is sufficient for present purposes. It is compiled from all available sources, without partiality or prejudice, and the commentary is written without fear, favor, or affection. It includes every article which I have seen, and a few others, the titles of which I have taken from Mr. T. G. Gentry's book. For some, I am indebted to the kindness of Prof. C. V. Riley. Articles in favor of, as well as those unfavorable to, the Sparrow, have been collated with equal care; but those of the former character are so few and weak in comparison with those of the latter category, that if the contributions to the subject made by the eminent ornithologist, Dr. Thomas M. Brewer, be excepted, little remains on that side of the question. Additional titles of articles bearing upon the off side of the controversy are therefore the special desiderata of this piece of bibliography; but any additions to the list or corrections of errors which may be detected will be very acceptable to the compiler.

1867. PICKERING, C. [On the Introduction of the European House Sparrow into America, as threatening a Great Evil.] <*Proc. Bost. Soc. Nat. Hist.* xi. 1867, pp. 157, 158.

It appears from the record herewith presented that the credit of being the first in this country to foresee and predict the evil to result from the introduction of Sparrows into America belongs to Dr. Charles Pickering. This article may be regarded as the entering-wedge; and as such it is entitled to special consideration. It was not, however, until 1874, that the controversy was fairly opened, though in the mean time several American writers ventured to express their apprehensions, and to give warnings which passed unheeded. *Cf.*, *e. g.*, BRUCE, *Amer. Nat.* vi. 1872, pp. 469, 470; COUES, *Key N. A. Birds*, 1872, p. 146.

1868. BREWER, T. M. The European House Sparrow [Passer domesticus]. <*Atlantic Monthly*, May, 1868, pp. ———.

Not seen.

1868. SWEETAPPLE, E. English Sparrows [Passer domesticus] in America. <*Zoologist*, 2d ser. iii. 1868, pp. 1375, 1376.

1869. FORNEY, J. W. The Sparrows [Passer domesticus]. <*The Weekly Press* (Philadelphia), —, 1869.

Not seen—incomplete title cited from Gentry.

1869. FORNEY, J. W. Sparrows [Passer domesticus]. <*The Press* (Philadelphia), —, 1869.

Not seen—incomplete title cited from Gentry.

1869. LESGUILLON, J. La Proscription des Moineaux [Passer domesticus]. <*Naturaliste Canadien*, i. 1869, pp. 58–64, 99–101.

Poême.

1869. ——— One Thousand Sparrows [Passer domesticus] Shipped. <*The London Times*, —, 1869.

Not seen—incomplete title cited from Gentry.

1869. ——— The Sparrow [Passer domesticus] in America. <*The London Times*, —, 1869.

Not seen—incomplete title cited from Gentry.

1869. ——— Take Care of the Birds [Passer domesticus]. <*Public Ledger and Daily Transcript* (Philadelphia), —, 1869.

Not seen—incomplete title cited from Gentry.

1870. COLLETE, J. R. House Sparrow [Passer domesticus]. <*Amer. Nat.* iv. No. 1, Mar. 1870, pp. 54, 55.

The naturalization of the species is considered in a fair way of accomplishment, and to call for some notice and congratulation.

1870. GLICK, G. W. The English Sparrow [Passer domesticus]. <*Prairie Farmer*, Mar. —, 1870.

Queries whether the birds would destroy curculios. Editor's reply, that there is no evidence to favor such a supposition.

1870. V[OELKEL], P. Moineaux [Passer domesticus] au Canada. <*Bull. Soc. Acclim.* 2^e sér. vii. 1870, pp. 322, 323.

From the London Field, Dec. 25, 1869.

1870–71. THORPE, T. B. The English Sparrow [Passer domesticus]. <*Appleton's Journ.* iv. Oct. 1870, p. 494; vi. Oct. 1871, p. 467.

1871. S[OUBEIRAN], J. L. Acclimatation des Moineaux [Passer domesticus] aux États-Unis. <*Bull. Soc. Acclim.* 2^e sér. viii. 1871, p. 582.

From Report of the Commissioner of Agriculture for 1869, p. 300.

1871. ——— Nos Moineaux. <*Naturaliste Canadien*, iii. 1871, p. 51.

Sur l'acclimatation du Passer domesticus à Québec.

1872. J. P. The English Sparrows [Passer domesticus]. <*Country Gentleman*, Aug. 1, 1872.

That they are not efficient destroyers of insects, but that they do drive away native birds.

1872. SCOTT, JAS. The English Sparrow [Passer domesticus]. <*Gardener's Magazine*, Feb. 1872.

"The English Sparrows get much credit for the extermination of the Span Worm in New York and Philadelphia. Is there proof that they had anything to do with the matter? . . . The Span Worms have their periods, and come and go without thanks to the Sparrow."

1873. LEWIS, E., *jr.* [The Naturalization of] The English Sparrow [Passer domesticus, in America]. <*Popular Science Monthly*, Feb. 1873, pp. 508, 509.

1873? TRIMBLE, I. P. The English Sparrow [Passer domesticus]. <*Newspaper, name and date unknown.*

Substance of an address before the American Institute Farmers Club, entirely unfavorable to the birds. "The judgment of the Club was that the Sparrows had better be exterminated."

1874. ANON. Sparrows [Passer domesticus] at New Brunswick, N. J. <*Amer. Sportsm.* v. Nov. 21, 1874, p. 119.

1874. ANON. Le Moineau domestique [Passer domesticus]. <*Naturaliste Canadien*, vi. 1874, pp. 286, 287.

1874. ANON. Les Moineaux Européens [Passer domesticus]. <*Naturaliste Canadien*, vi. 1874, pp. 319, 320.

1874. ANON. Indictment of the English Sparrows [Passer domesticus]. <*Popular Science Monthly*, v. 1874, p. 763.

Not seen—title from Gentry.

1874. BREWER, T. M. The European House Sparrow [Passer domesticus]. <*Amer. Nat.* viii. No. 9, Sept. 1874, pp. 556, 557.

The opening of the controversy on the part of Dr. Brewer. "I regret very much that a naturalist generally so well informed as Dr. Coues, should aid in giving what my own observations compel me to believe to be an altogether wrong statement in regard to the house sparrow, published in the July number of the NATURALIST. . . . I submit that this is too important a question to be thus dismissed, especially by a gentleman like Dr. Coues, who has enjoyed no opportunity of knowing from his own observations whether the opinions he is so free to express are well founded or not. The statement of Mr. Gentry I entirely discredit." Dr. Brewer's own observations and opinions follow.

1874. BREWER, T. M. The European House Sparrow [Passer domesticus]. <*Amer. Sportsm.* Oct. 24, 1874, p. 49.

Of same tenor as his article in The American Naturalist, viii. No. 9, Sept. 1874, pp. 556, 557.

1874. BREWER, T. M. Work of English Sparrows [Passer domesticus] in Boston. <*Amer. Sportsm.* iv. 1874, p. 179.

Assertion of their good offices in destroying repulsive insects.

1874. COUES, E. English Sparrows [Passer domesticus]. <*Amer. Nat.* viii. No. 7, July, 1874, p. 436.

Having expressed, in the Key to North American Birds, p. 146, (1872), apprehensions that the Sparrows would soon begin to interfere with the native species, Dr. Coues prints a statement from Mr. T. G. Gentry verifying the anticipation. Says Mr. Gentry, referring to Sparrows in Germantown, Pa.: "They increase so rapidly and are so pugnacious, that our smaller native birds are compelled to seek quarters elsewhere." Dr. Coues continues: "I did not expect the bad news quite so soon. Probably it will not be long before we hear the same complaints from other places. . . . There is no occasion for them [the Sparrows] in this country: the good they do in destroying certain insects has been overrated. I foresee the time when it will be deemed advisable to take measures to get rid of the birds, or at least to check their increase."

1874. COUES, E. The Sparrow [Passer domesticus] War. <*Amer. Sportsm.* v. Nov. 21, 1874, p. 113.

"Several articles which have lately appeared in The American Naturalist and American Sportsman, from my pen and others, indicate that a pretty lively contest is likely to result. Much as I dislike controversy, . . . I am just as willing to stand corrected as to prove anybody else wrong. The personal aspect of the question is a matter of the utmost indifference to me. . . . It is a more important question than it looks at first sight, and it is daily growing more so. Now let us accumulate evidence."

1874. GENTRY, T. G. English Sparrows [Passer domesticus]. < *Amer. Nat.* viii. No. 11, Nov. 1874, pp. 667–672.

Attesting the molestation of various native American birds by the Sparrows, in amplification of his previous testimony to the same effect (*tom. cit.* p. 436); and denouncing as groundless the charges of misrepresentation brought against E. Coues and himself by T. M. Brewer (*tom. cit.* p. 556). The article is notable among those opening the controversy.

1874. GENTRY, T. G. English Sparrows [Passer domesticus]. < *Amer. Sportsm.* v. Nov. 14, 1874, p. 98.

From the American Naturalist, viii. No. 11, Nov. 1874, pp. 667–672.

1874. GOULD, SAMUEL. English Sparrow [Passer domesticus]. < *Amer. Nat.* viii. No. 11, Nov. 1874, pp. 692, 693.

Statement of the quantity of kitchen vegetables he was able to raise by using netting to prevent the Sparrows from doing serious damage.

1874. GOULD, SAMUEL. [English Sparrow. Passer domesticus.] < *Amer. Sportsm.* v. Nov. 21, 1874, p. 113.

From the American Naturalist, viii. 1874, pp. 692, 693.

1874. GREGORY, J. H. Are European Sparrows [Passer domesticus] to be a Pest? < *Moore's Rural New Yorker*, Oct. 10, 1874.

Affirmative: . . . "that to reduce the number of caterpillars on a few thousand shade trees in deference to the weak nerves of over-nice individuals, we had opened a perfect Pandora's box, and let fly through the land destruction to the grain crops of the country to the value of millions annually."

1874. LAMBERTON, A. B. The Sparrow [Passer domesticus] Controversy. < *Amer. Sportsm.* v. Dec. 26, 1874, p. 200.

"I am fearful lest they do much towards driving away from our cities our best and sweetest song birds. . . . It is high time for us to declare war against the foreign intruders."

1874. "OLLAPOD QUILL." The English Sparrow [Passer domesticus]. < *Forest and Stream*, iii. Nov. 12, 1874, p. 212.

Discountenancing its propagation in the United States.

1874. RIDGWAY, R. A Contribution to the "Sparrow [Passer domesticus] War." < *Amer. Sportsm.* v. Dec. 12, 1874, p. 161.

Pugnacity of the species, which is stated to have driven away the Song Sparrows from the Smithsonian Grounds in Washington. Witness of the attack of Sparrows upon a Snowbird.

1874. SWEETAPPLE, E. English Sparrows [Passer domesticus] in Philadelphia. < *Zoologist*, 2d ser. ix. 1874, p. 4197.

1874. WADE, J. M. Pet Sparrows [Passer domesticus]. < *Fancier's Journal and Poultry Exchange*, i. 1874, p. 118.

Not seen—title from Gentry.

1874. WADE, J. M. War on the Sparrows [Passer domesticus]. < *Fancier's Journal and Poultry Exchange*, i. 1874, p. 426.

Not seen—title from Gentry.

1874. WILLARD, S. L. English Sparrows [Passer domesticus] and American Birds. < *Moore's Rural New Yorker*, Apr. 25, 1874.

Statement that the birds are not as beneficial as they had been supposed to be, and their injurious reaction on native species.

1874. WILSON, E. R. Sparrows [Passer domesticus] rule the roost. < *Amer. Sportsm.* v. Nov. 7, 1874, p. 91.

Disappearance of Swallows and other birds with the advent of Sparrows at Syracuse, N. Y.

1875. ANON. Sparrows [Passer domesticus] and Fruit-Growers. < *Amer. Agric.* Feb. 1875.

"That they destroy insects there is no doubt, but their work is not entirely beneficent; and melancholy accounts have been told of loss to the farmers by the havoc Sparrows make in their grain."

1875. ANON. Sparrows [Passer domesticus], Moles and Toads. < *American Garden*, Feb. 1875.

"The charge of driving away our native birds is an inexcusable libel upon them."

1875. ANON. Concerning English Sparrows [Passer domesticus]. < *Oologist* (Utica, N. Y.), i. 1875, p. 6.

Apparently extracted from Moore's Rural New Yorker, April 25, 1874.

1875. ANON. Those Sparrows [Passer domesticus]. < *Rod and Gun*, vi. June 5, 1875, p. 155.

Quoted from Cleveland (Ohio) Herald: aggressions of Sparrows against Orioles.

1875. BATTY, J. H. English Sparrows [Passer domesticus] on L.[ong] Island. < *Forest and Stream*, iv. Mar. 25, 1875, p. 101.

Increase of the birds in that region, and their pugnacity.

1875. BENDIRE, C. The Sparrow [Passer domesticus]. < *Amer. Sportsm.* v. Jan. 9, 1875, p. 227.

Results of two years' observations of Sparrows at St. Louis, Mo. No molestation of native birds observed. "I must say, however, that in my opinion the usefulness of the English Sparrows as insect-destroying birds is greatly over-rated, and that we have many native species who destroy more noxious insects in a single day than a Sparrow will in a week."

1875. BREWER, T. M. The European House-Sparrow [Passer domesticus]. < *Amer. Sportsm.* v. Feb. 6, 1875, p. 298.

From the Atlantic Monthly for May, 1868, on the habits of the birds in America.

1875. BREWER, T. M. Sparrows [Passer domesticus]. < *Amer. Sportsm.* v. Feb. 27, 1875, p. 341.

Sustaining its character as a useful bird in Europe. M. Florent Prévost's results are cited here, as at frequent intervals throughout the controversy.

1875. BREWER, T. M. Sparrows [Passer domesticus]. < *Rod and Gun*, vi. June 12, 1875, p. 171.

Defending the birds from charges brought against them by R. Deane, *tom. cit.* May 29, 1875.

1875. BREWER, T. M. [By error, COUES, E.] More Sparrows. *Rod and Gun*, vi. July 10, 1875, p. 232.

1875. COUES, E. The Sparrows [Passer domesticus]. < *Amer. Sportsm.* v. Jan. 23, 1875, p. 264.

Presenting two letters in evidence: 1. From C. H. L[add], attesting that the Sparrows had driven birds away from Elizabeth, N. J. 2. From W. J. Hoffman, to same effect in case of Reading, Pa.

1875. COUES, E. Sparrows—more evidence. < *Rod and Gun*, vi. July 17, 1875, p. 249.

Covering letter from W. J. H[offman] concerning spoliation of nests of native birds by the Sparrows.

1875. DEANE, R. Sparrows [Passer domesticus]. < *Rod and Gun*, May 29, 1875, p. 129.

The quarrelling of the Sparrows with Chipbirds, Bluebirds, &c.

1875. HAMPTON, C. J. English Sparrows [Passer domesticus] and the Canker Worms. < *Moore's Rural New Yorker*, Jan. 23, 1875.

"English Sparrows have had no agency in the disappearance of the worms" in Seneca County, N. Y. Editor continues: "At the very time of their introduction into New York City and Brooklyn, a small ichneumon fly had already lessened very materially the number of spanworms, which were so disagreeably abundant in these cities, and it is very probable that the insects would have disappeared without the aid of the birds."

1875. H[AYES ?], J. L. More about the Sparrows [Passer domesticus]. < *Amer. Sportsm.* v. Jan. 9, 1875, p. 228.

1875. K[EENE], S. W. The Sparrows [Passer domesticus]. < *Rod and Gun*, vi. Apr. 3, 1875, p. 11.

Charge of molesting Song Sparrows.

1875. "MORTIMER." The Sparrows [Passer domesticus]. < *Amer. Sportsm.* v. Jan. 9, 1875, p. 227.

Witnessing the fact that the Sparrows drive away native birds.

1875. R. W. H., *and* EDITOR. Sparrows [Passer domesticus] and Fruit Culture. < *Gardener's Mag.* June, 1875.

Presenting both sides of the question.

1875. S. O. T. [*i. e.* KEENE, S. W.] Caution to Coues. < *Amer. Sportsm.* Mar. —?, 1875.
Lest the Sparrows combine to attack him. Henry Ward Beecher later produced a squib of the same kind.

1875. STERLING, E. [Sparrows. Passer domesticus.] < *Amer. Sportsm.* Jan. 23, 1875.
"They are a most pestiferous bird, driving all our native birds away, and at the same time, destroying no insect life that preys upon our roadside trees."

1875. STERLING, E. Those Sparrows [Passer domesticus]. < *Rod and Gun*, vi. July 31, 1875, p. 266.
Repeated spoliation of nests of Robins and Orioles by the Sparrows.

1875. W. B. C. Sparrows [Passer domesticus]. < *Rod and Gun*, vi. June 19, 1875, p. 187.
Ejectment of different birds from their homes by the Sparrows.

1875. WADE, J. M. The English Sparrow [Passer domesticus]. < *Fancier's Journal and Poultry Exchange*, ii. 1875, p. 638.
Not seen—title from Gentry.

1875. WADE, J. M. Story of a Sparrow [Passer domesticus]. < *Fancier's Journal and Poultry Exchange*, ii. 1875, p. 334.
Not seen—title from Gentry.

1876. ANON. [English Sparrows, Passer domesticus, eating crocuses.] < *Rod and Gun*, viii. Apr. 29, 1876, p. 71.

1876. "BOB." [ROBERTS, T. S.] English Sparrows [Passer domesticus] in [Minneapolis,] Minnesota. < *Forest and Stream*, vii. Dec. 7, 1876, p. 277.

1876. "DOG. WHIP." My English Sparrows [Passer domesticus]. < *Rod and Gun*, vii. Feb. 26, 1876, p. 341.

1876. J. C. K. [History of a tame English Sparrow.] < *Forest and Stream*, vi. Mar. 2, 1876, p. 52.

1876. "MAJOR." The Sparrow [Passer domesticus]—A Farmer's Complaint. < *Moore's Rural New Yorker*, May 6, 1876.
Attesting the destruction of measuring-worms by the Sparrows, and the greater destruction of grain. "The city people *knew* when they imported the greedy, fighting songless sparrow, that they were introducing one pest to exterminate another."

1876. MUENCH, F. The European House Sparrow [Passer domesticus]. < *Rural World*, Apr. 19, 1876; reprinted N. Y. *Weekly Sun*, May 24, 1876.
"Nothing eatable, if possibly accessible, is secure from his attack—garden products, as well as all kinds of fruit, cherries and grapes in particular; wheat fields . . . what barns, stables and houses contain, if not carefully guarded—will become his prey."

1876. VAN FLEET, W. The English Sparrow [Passer domesticus]. < *Watsontown Record* (Watsontown, Northumberland Co., Pa.), Mar. 10, 1876.
In answer to a pseudonymous article in same paper of February 11, 1876, being an extended presentation of the pernicious results of introducing the bird into America, much irrefragable evidence being adduced. "I think the above terrible array of evidence will convince any one, not absolutely wooden-headed that at no distant day this apparently trivial question will become one of National importance; and that if some means is not promptly taken to check the unparalelled [*sic*] increase of this destructive bird, they will become a pest only equalled by the grasshoppers of the West." The article includes a long letter from Mr. R. Ridgway, to the same effect. Says this ornithologist: "In answer to your inquiry whether I regard the introduction of the European House sparrow into the country as likely to prove a benefit, my answer is, most emphatically, that I deeply regret the mistaken policy that caused the importation of this extremely undesirable bird."

1877. ANON. About the English Sparrow. < *Popular Science Monthly*, No. 64, 1877, p. 506.
Not seen—title from Gentry.

1877. ANON. About Sparrows. < *Scientific American*, xxxvii. n. s. 1877.
Not seen—title from Gentry.

1877. ANON. [BREWER, T. M.?] Another Ornithological Experiment. < Boston paper, name unknown, about June, 1877.
The anonymous writer, *à propos* of the introduction of the European Starling into America, takes occasion to enlarge upon the services of the House Sparrow, and to compare the usefulness of the two birds in favor of the latter.

1877. ANON. [BREWER, T. M.] The Sparrow Question [Passer domesticus]. < *The American Cultivator* (Boston, Mass.), June 23, 1877.

An ambushed attack upon T. G. Gentry, in which the latter is satirized, ridiculed, and abused for his remarks upon the subject in his "Life-Histories of the Birds of Pennsylvania." Anonymus charges Mr. Gentry with deliberately "concocting, publishing and corrupting the public mind by conclusions and statements" which, &c. There is a spice of Attic salt in such writing, which makes it very palatable, and tends to cement friendship and shorten controversy. No argument is made in this case, the article being a lampoon, chiefly directed against Mr. Gentry's alleged literary infelicities.

1877. ANON. [BREWER, T. M.] Ornithological Papacy. < *Boston Journal*, June 5, 1877.

This is one of Dr. Brewer's most amusing tirades. He takes as his text that same paragraph of Coues and Prentiss's which gave him such offence, and discourses upon the subject at length. The burden of the grievance this time is the remarks of those gentlemen respecting the action Boston took in the matter of the Shrikes. Mr. Galvin reappears, as usual. The author "ventures to suggest" to them, that "Boston knows already what are alike her duties and her interests, as regards the sparrow." Lest the applicability of the title of this paper to the subject be missed, it should be explained that the writer charges Drs. Coues and Prentiss with an "assumption . . . of infallible wisdom and knowledge on the subject, quite papal in tone."

1877. ANON. [COMMAGÈRE, F. Y.] [An editorial in favor of Passer domesticus in America.] *The Gazette* (Washington, D. C.), May 27, 1877.

Quoting Drs. Coues and Prentiss's recent article in Field and Forest, and reflecting upon it with mock severity.

1877. ANON. Sparrows' [Passer domesticus] Power of Reasoning. < *Chicago Field*, Oct. 20, 1877.

From the Hartford Times, date unknown. "A curious story, illustrative of the intelligence and reasoning power, and perhaps of the characteristic rascality also, of" the bird. A female stole a feather from another's nest, and hid it till she could get a chance to deposit it in her own nest unobserved.

1877. ANON. Sparrows [Passer domesticus]. < *New York Herald*, Aug. 11, 1877.

"We believe Dr. Coues is right. . . . He points out, what is known to be true by every observing farmer near New York, that the sparrows are gradually driving away all the native birds."

1877. BREWER, T. M. Sparrow [Passer domesticus]. < *The Gazette* (Washington), vol. xvii. No. 26, June 3, 1877.

I have lost or mislaid the clip, and cannot give the substance of this article. It contained, however, something about a lie well stuck to being as good as the truth, with reference to some writings of E. Coues on the Sparrow question. The writer subsequently apologized. Cf. 1877, BREWER, T. M., and 1877, COUES, E.

1877. BREWER, T. M. The Sparrow [Passer domesticus] again.—Another letter from the Distinguished Ornithologist, Dr. Brewer. < *The Gazette* (Washington, D. C.), July 1, 1877.

Personal and apologetic, courteously disclaiming as unintentional that reflection which he had been understood to cast, in a previous letter in the same paper, upon E. Coues's sincerity and veracity.

1877. BREWER, T. M. Justice to the Sparrow [Passer domesticus]. < *Boston Daily Advertiser*, Dec. —, 1877.

Denying the statements of fact made by H. A. P[urdie] in same paper of July 30, 1877, respecting *Orgyia leucostigma*. Mr. J. Galvin, the city forester, is produced as a witness. The upshot of a long narrative of his personal observations in Boston is: "It is not only my belief, but my knowledge, that the sparrow does eagerly and thoroughly destroy this troublesome insect."

1877. B[REWER], T. M. The House Sparrow [Passer domesticus]. < *Boston Daily Advertiser*, Dec. 8, 1877.

Covering a letter from Dr. H. Hagen, defending the Sparrows, and one from S. Cabot, M. D., defending T. M. Brewer. No material point made in either case.

1877. B[REWER], T. M. The Sparrow [Passer domesticus] once more. < *Boston Daily Advertiser*, Dec. 10, 1877.

Covering a letter from Amos Binney to T. M. Brewer, testifying that the latter is "wholly right in the matter." Followed by a letter from "Z.", which, if accurate, would make Dr. Brewer wholly wrong in the matter.

1877. COUES, E. The Sparrow [Passer domesticus] once more.—Dr. Coues replies to Dr. Brewer. < *The Gazette* (Washington, D. C.), July 8, 1877.

The retort courteous, accepting Dr. Brewer's disclaimer of intentional offensiveness, and restating his own positions. "I must not be understood to reflect in the slightest upon his veracity. I only arraign his inability to understand . . . the case," &c.

1877. COUES, E. Letters on Ornithology. . . . No. 16—The English Sparrow [Passer domesticus]. < *The Chicago Field*, July 21, 1877.

"In this communication to my friends and the public, I wish to call serious attention to a subject of growing importance, the issue of which requires to be met squarely and fairly. I refer to the extraordinary multiplication of English Sparrows in this country, and to the consequences, immediate and remote, of their presence in such numbers." The article is a full statement of the case from the writer's standpoint. With the exception of the "Ineligibility" article in The American Naturalist for 1878, it is the most extended and complete article which the controversy has drawn from this pen.

1877. COUES, E., *and* PRENTISS, D. W. [Note on Passer domesticus in Washington, D. C.] < *Field and Forest*, ii. No. 11, May, 1877, pp. 192, 193.

Though not a special paper, being merely one of some "Remarks on Birds of the District of Columbia," this note is here inserted in consequence of the unexpected commotion it occasioned and the stimulus it imparted to the controversy. The passages reappeared and were reprinted again in numberless places with an unaccountable degree of vitality. They are here reproduced, as something of a curiosity, considering to what career they were destined.

"*Passer domesticus*, the nuisance, was introduced [in the District of Columbia] some years after our list [of the Birds of the District] appeared, and now these rowdy little *gamins* squeak and fight all through the city, to our great disgust. The introduction of these exotics clutters up ornithology in a way that a student of geographical distribution may deplore, and interferes decidedly with the 'balance of power' among the native species. Whatever may be said to the contrary notwithstanding, these Sparrows *do* molest, harass, drive off, and otherwise maltreat and forcibly eject and attempt to destroy various kinds of native birds, which are thereby deprived of certain inalienable rights to life, liberty and the pursuit of happiness after their own fashion.

"We understand that in Boston, where the Sparrows are extremely numerous, the Butcher-birds (*Collurio borealis*) lately appeared in force, and feasted upon the birds, until the legislators, or whoever had authority in the matter, ordered them to be systematically destroyed, thus thwarting, with characteristic human short-sightedness, the first efforts Nature made to readjust the disturbed balance of her forces."

1877. "DOM PEDRO." Another Opinion of the Sparrows [Passer domesticus]. < *Forest and Stream*, viii. July 5, 1877, p. 360.

Favorable to the birds.

1877. EDITORIAL. The English Sparrow [Passer domesticus].—Is he a Blessing or a Nuisance? < *Forest and Stream*, viii. May 31, 1877, p. 261.

Reproduced from the Boston Transcript, with brief editorial comment. It consists of a letter from T. M. Brewer to J. Galvin, city forester of Boston, Mass., asking if he did not think so and so; and the reply of the latter, that he did think thus and thus; this being intended to settle the question. The article continues with a pseudonymous letter from "Arrow," testifying to the Sparrows' "idleness and general incapacity."

1877. EDITORIAL. The Sparrows [Passer domesticus] again. < *Forest and Stream*, viii. July 12, 1877, pp. 379, 380.

An editorial make-up of extracts from various published articles for and against the birds. One correspondent says: "Having dissected some thirty or forty birds in all, no sign of worms or injurious insects was found." Another calls the birds "infernal little frauds." "Dr. Brewer believes the sparrows to have been of incalculable benefit."

1877. ELLIOTT, C. W. The Sparrows [Passer domesticus]. < *Boston Daily Advertiser*, Dec. 11, 1877.

Statement of evidence from the manager of Central Park, N. Y., that the Sparrow banishes the measuring-worm, and does not drive away other birds.

1877. Gentry, T. G. The Sparrow Question [Passer domesticus]. < *The American Cultivator* (Boston, Mass.), Oct. 27, 1877.

A reply to T. M. Brewer, *op. cit.* June 23, 1877, which article compares in no favorable light with the less witty but more weighty statements of the person who had been ridiculed for his opinions, and abused for his observations of fact. Mr. Gentry shows the discrepancies between Dr. Brewer's alleged facts and the facts themselves, as attested by Messrs. R. Deane and H. A. Purdie. He writes like a man laboring under a sense of wrong done him, and a conviction of the soundness of his position.

1877. Loomis, E. The English Sparrow [Passer domesticus]. < *Mirror and Farmer*, July 21, 1877.

Views of "an English agriculturist, now travelling in this country," favorable to the Sparrow.

1877. "O." The Sparrow [Passer domesticus] *vs.* the Caterpillar. < *Boston Daily Advertiser*, July 31, 1877.

Endorsing Mr. Purdie's testimony, denying that the birds have anything to do with the decrease of the insects.

1877. P[urdie], H. A. The Sparrow [Passer domesticus] in Boston. < *Boston Daily Advertiser*, July 30, 1877.

A clear refutation of the assertions of T. M. Brewer and others, that the Sparrow had been effective in destroying the *Orgyia leucostigma*, the trees being devastated by these insects, and the city forester having men at work still. "All over the boles of the elms, maples, lindens and other trees might be seen crawling the larvæ . . . the completed cocoons were to be seen by thousands. . . . not one is molested by *passer domesticus*." The extracts from one of Dr. Brewer's articles, printed in the body of this paper, read very curiously in the face of the facts adduced. The writer had every opportunity for accurate observation.

1877. Samuels, E. A. Butcher Birds and Sparrows [Passer domesticus]. < *Boston Transcript*, Feb. 3, 1877.

Denunciatory of the Sparrow, and advocating the Butcher Birds as destroyers of the nuisance. "The bird will unquestionably prove as great a nuisance in this country as it has been found in Europe, and I doubt not a bounty will at some time be offered for its head. . . . The English sparrow has driven away all our own pretty and interesting and musical birds, and I almost wish for a visitation from some immense host of 'butcher birds' to finish them."

1877. "*" [*i. e.* Henry Ward Beecher]. Star Paper.—Sparrows to the Rescue. < *The Christian Union*, Aug. 8, 1877.

The celebrated clergyman who here essays ornithology, in somewhat satirical vein, accuses E. Coues of having "incited a riot" against the Sparrows; denies the allegation that the Sparrows molest native birds; calls it "treason," and predicts that the ornithologist mentioned "shall be known in the kingdom of birds as a public foe," with much more of the same sort. It is presumed that many uninformed or misinformed persons may agree with him.

1877. ——— The Starlings in Central Park.—Some disparaging Comments about the Sparrows [Passer domesticus]. < *Forest and Stream*, vol. viii, June 14, 1877, pp. 307, 308.

This is a composite article, consisting of letters from several persons. 1. Wm. Walsh, of Brooklyn, N. Y., gives instances of the Sparrows harassing other birds, and states that he knows from experience that the Sparrow is "a good-for-nothing domineering bird." 2. H. G. Carey, of Indianapolis, weighs the evidence for and against the birds, in a very impartial manner, in fourteen distinct propositions. 3. "E." writes favorably of the birds, though detailing their disputes with Bluebirds and Wrens. 4. "Red Wing" states that the presence of the Sparrows makes very little difference with other birds. 5. Is from T. M. Brewer. 6. H. D. Minot presents evidence against the birds in four distinct counts.

1877. ——— Further Evidence on the Sparrow Question. < *Forest and Stream*, vol. viii. July 26, 1877, p. 420 (see also pp. 261, 360, 379).

Three letters from correspondents. 1. "Tanager" deems it not only a duty but a pleasure to add his testimony against the birds. 2. "Fidelis" wishes to say a few words for the dear companions of her childhood, the native birds, which the Sparrows had driven away. 3. "Woman" attests the pluck of the Sparrow, &c.

1878. Akhurst, J. The Sparrows [Passer domesticus]—Letter from a Competent Witness. < *Boston Journal*, Mar. 15, 1878.

"I believe the sparrow to be a very useful little bird, and I should be very sorry to see him destroyed."

1878. Akhurst, J. The English Sparrow [Passer domesticus]. < *Forest and Stream*, x. April 18, 1878, p. 196.

Favorable to the bird.

1878. Allen, J. A. The Nuttall Ornithological Club. < *Boston Journal*, Mar. 19, 1878.

A dignified and well-considered defence of the Club from the attacks made in the article entitled "History Repeating Itself," and elsewhere. "Neither the ideas, the similes, nor the phraseology of the article are new, having done service repeatedly in other Boston papers within a few weeks in a similar connection. Therefore the inference is natural, that they have emanated, either directly or indirectly, from a single source. The article in question is simply a presentation, in connected form, of the various anonymous squibs that have appeared repeatedly in other papers. . . . Unfortunate, indeed, is it if this purely practical and scientific question cannot be discussed on its merits, and that the defenders of the sparrows must confess their weakness by a persistent resort to such unsafe weapons as misrepresentation and ridicule."

1878. Allen, J. A. The Nuttall Ornithological Club. < *Evening Transcript*, Mar. 21, 1878.

A defence of the Club, which had been "referred to contemptuously as a body of 'Cambridge juveniles,' 'precocious boys,' 'over-modest youths,'" &c., including a statement of its organization and operations, and the real character of its membership. T. M. Brewer is mentioned as a member, and a contributor to the Bulletin of the Club.

1878. Anon. [A Witticism.] < *Evening Transcript* (Boston, Mass.), Nov. 6, 1878.

"An eminent ornithologist [*i. e.* Dr. Brewer?], who evidently does not sympathize with the juveniles of Cambridge [*i. e.* the Nuttall Ornithological Club] in their diatribes against the sparrow, in a letter to a friend in this city writes, 'The three tailors of Toodle street, Boston, have made their resolutions, committing the people of the United States to antagonism on the sparrow question.'"

1878. Anon. [Editorial paragraph on Passer domesticus.] < *Port Huron Times*, Mar. 13, 1878.

Unfavorable to the birds.

1878. Anon. History Repeating Itself. < *Boston Journal*, morning edition, Mar. 14, 1878.

Opening with a reference to the "tailors of Toodle street," this article characterizes the Nuttall Ornithological Club as the "association of over-modest young gentlemen, comprising lads fitting for college and undergraduates, with a sprinkling of others a few years their seniors," overlooking the membership of some whose years, as well as their eminence in science, should have entitled them to more respectful consideration than this. The article is entirely devoted to ridicule and abuse of the Club.—On begging to know its authorship, to complete my bibliography of the subject, I was informed by Dr. Brewer that he did not write it, and that, furthermore, he had never even read the published proceedings of the Club. Its peculiar vein of satire is, however, diagnostic of its authorship, whosever hand actually penned it; though doubtless the answer I received was true to the letter. It is a matter for surprise, however, that Dr. Brewer should have remained uninformed of the action of the Club in a matter in which he had previously, and has subsequently, shown himself to be interested.

1878. Anon. Justice to the English Sparrow [Passer domesticus]. < *The Country*, i. Feb. 16, 1878, p. 229.

Congratulating the Nuttall Club on the result of their action.

1878. Anon. Our Naturalized Bird [Passer domesticus]. < *Chelsea* (Mass.) *Record*, May 11, 1878.

An unornithological editorial, favoring the Sparrows, and giving a fling at the Nuttall Club.

1878. Anon. The House Sparrow [Passer domesticus]. < *Ohio Farmer*, Mar. 3, 1878.

Review of T. G. Gentry's book.

1878. Anon. The Other Side [of the Sparrow Question]. < *Boston Journal*, June 18, 1878.

Entirely favorable to the Sparrow, but consisting largely of assertions, not statements of fact. The anonymous writer takes occasion to abuse Dr. Coues and T. G. Gentry for their views, which he quotes, though without mentioning names.

1878. ANON. "History Repeats Itself, But Fools Profit Not by Its Teachings."—[Carlyle. < *Boston Evening Journal*, July 19, 1878.

Authorship unknown, but the style familiar. It reiterates the assertion that the Sparrows "have nobly done their part of the work" in destroying *orgyia lercostigua* [sic].

1878. ANON. [Statement of the continued efforts of J. Galvin, with a force of 35 men, to do what the Sparrows had been alleged to have done in clearing trees of Orgyia leucostigma.] < *Boston Post*, July 19, 1878.

1878. ANON. Notes. < *The* (N. Y.) *Nation*, Aug. 8, 1878.

Reviewing E. Coues's article in The American Naturalist for August, 1878, with a résumé of the points there made.

1878. ANON. The Sparrows [Passer domesticus]. < *The Country* (N. Y.), Aug. 10, 1878.

1878. ANON. The English Sparrow [Passer domesticus] Question. < *Evening Transcript* (Boston), Aug. 13, 1878.

Copied from the New York Nation of August 8, 1878, *q. v.*

1878. ANON. [E. Coues as inimical to the European Sparrow.] < *Scientific Farmer* (Boston), iii. No. 9, Sept. 1878.

"Now that the doctor has classified the friends of the sparrow, who is wise or honest enough to argue the matter? Plainly, only those who agree with him. What science!"

1878. APPLETON, G. L. The English Sparrows [Passer domesticus] in Georgia. < *Forest and Stream*, Mar. 28, 1878, p. 135.

Their arrival at Myrtle Grove, Bryan County, in March, 1878.

1878. AUGHEY, S. The English Sparrow [Passer domesticus]. < *First Ann. Rep. U. S. Entomological Commission*, 1877, p. 349.

"Several persons have advocated the introduction of the English sparrow [in Nebraska], in order to mitigate our insect plagues. Such a policy, it appears to me, would be highly objectionable. . . . Where I have seen this bird in America it has gradually driven off our native birds. . . . Some years ago, . . . the English sparrows were introduced into Nebraska City, and have multiplied to a considerable extent, but the number of species of insects that they feed on, as has been anticipated, has been found to be small. This of course could have been endured if they were not so hostile to other birds, native to the soil, that do much better."

1878. BALLOU, W. H. The English Sparrow [Passer domesticus] in Illinois. < *The Country*, i. Jan. 12, 1878, p. 149.

1878. BALLOU, W. H. English Sparrows [Passer domesticus]. < *The Chicago Times*, Sept. 8, 1878. Reprinted, *Mexico (N. Y.) Independent.*

Highly unfavorable to the Sparrows, which are denounced in unmeasured terms.

1878. "BIRD." The "English Sparrow" [Passer domesticus] Question. < *Massachusetts Ploughman*, Aug. 3, 1878.

Chiefly historical, with reference to legislative action in the case. "In March, 1877, an order was introduced in the Massachusetts Senate, by Senator Gregory, concerning the English sparrows, and this order was referred to the Committee on Agriculture. The sparrow was, and is, protected under our laws. The idea of this order was to have this protection removed because of the character and habits of the sparrow." On a hearing, the evidence proved to be "almost entirely against the sparrow." A clear statement of the many counts against the birds follows: "The evidence was conclusive that, outside of cities and towns, in all countries where they exist, they are an undoubted nuisance to agriculturists. In Cuba, where they were in 1862 or 1863, and had become very numerous, they do immense damage, and are called 'Destroyers.' The bill seems however to have failed, from the opposition of Representatives from large towns and cities, 'who thought the trees would suffer without the sparrows.'"

1878. BONER, J. H. Sparrows [Passer domesticus] in the Snow. By John Henry Boner. [n. d., n. p. Washington, D. C. Darby & Duvall. 1878.] Sq. 18mo. pp. 12, with eng. title and 4 other cuts.

Poem.

1878. BREWER, T. M. The Sparrow [Passer domesticus].—A Note from Dr. Brewer. < *Boston Daily Advertiser*, Feb. 25, 1878.

"Protesting" against J. Dixwell's letter as "the extreme discourtesy on the part of a total stranger," who had presumed to state the results of his dissections of 39 Sparrows, and averring that he [T. M. Brewer] has "neither the time nor the inclination to consider the opinions given by the young gentlemen of the Nuttall Club." See 1878, NUTTALL ORNITH. CLUB.

1878. BREWER, T. M. [On Orgyia leucostigma as food of Passer domesticus.] < *Proc. Bost. Soc. Nat. Hist. for* 1877, xix. 1878, pp. 260–262.

It may be noted here, that Sparrows supposed to be devouring the eggs or larvæ of this insect, may have been digging into empty cocoons. The article includes a note from Dr. H. Hagen, intimating his belief that the Sparrows do not interfere with native birds. See 1878, PURDIE, H. A.

1878. BREWER, T. M. Defending the Sparrows [Passer domesticus].—A Distinguished Boston Naturalist Protests Against Their Extermination. < *The Post* (Washington, D. C.), Dec. 7, 1878.

T. M. Brewer having been apprised of E. Coues's communication to the Commissioners of the District of Columbia, hastened to interfere, *more suo*. The present paragraph is a digest of his letter to the Commissioners, warning them against a proposition "so unjust to our benefactors, so unwise in itself, and so wholly unreasonable" as that made to them by Dr. Coues; imploring them to confer with "his life-long friend, Prof. Baird"; bringing F. Prévost this time to the front instead of J. Galvin; attempting to confound Dr. Coues out of his own mouth by an incompleted reference to the latter's "Key to North American Birds"; and taking issue on each point of Dr. Coues's "assumptions"; thus verifying one or more of the five categories of persons in which Dr. Coues had classed the Sparrows' defenders.

1878. BREWSTER, W. The Nuttall Ornithological Club of Cambridge. < *Boston Daily Advertiser*, Mar. 20, 1878.

A card representing the obvious inaccuracy of calling the members of the Club "boys," T. M. Brewer and others being of their number.

1878. C. E. H[AMLIN]. The English Sparrows [Passer domesticus]. < *The Times* (Bath, Me.), Feb. 26, 1878.

This is a report of the discussion of the Nuttall Club by a person who was present at the meeting, and a résumé of the evidence supporting the charges brought against the Sparrow; with a long array of facts from personal observation. "1st. It is found wherever the sparrows have become established, they are annually driving out more and more completely our most valued native birds." "2nd. The sparrows have been seen repeatedly to destroy the eggs and young of other birds by blows with their bills." "3d. Wherever the English sparrows have become abundant, it is found that they make foraging expeditions in flocks, from cities and villages which they prefer for abodes, into the grain fields of the surrounding farms." "4th. In the region about Boston, the sparrows fail to compensate for the evil they commit." These four propositions are supported by testimony of eye-witnesses. The article occupies two columns, and was written from Cambridge, Mass.

1878. "CORVIN." A Sparrow's Chirrup from Europe. < *Forest and Stream*, Nov. 28, 1878.

Being "much amused at the bitterness which the sparrow-war in America has assumed;" the writer chirrups pleasantly on the subject.

1878. COUES, E. The Sparrow [Passer domesticus] Pest. < *The Country*, Jan. 19, 1878.

Citing the observations of Dr. SACC, *Rev. et Mag. de Zool.* xii. p. 94, in evidence of the extraordinary fecundity of these birds. A female laid 35 eggs in as many days.

1878. COUES, E. The Ineligibility of the European House Sparrow [Passer domesticus] in America. < *Amer. Nat.* xii. No. 8, Aug. 1878, pp. 499–505.

This is a general statement of the case, indicting the Sparrow, with specific charges, and recommendations. It asserts that in the case of the Sparrow, the history of the white-weed and the Norway rat is repeated. It divides the friends of the Sparrow into five categories, only one of which is regarded as entitled to serious attention in discussing the matter upon scientific and economic grounds. The fifth category is said to consist of "a very few intelligent and scientific persons, who recognize fully what little good the sparrow undeniably does, and shape a favorable argument mainly from the undisputed advantages which result from a certain just and proper number of sparrows *in Europe*." The argument is shown to be thoroughly fallacious, as it does not apply to the present American state of the case. The specifications against the birds are thus stated: 1. They neglect entirely, or perform very insufficiently, the

1878. Coues, E.—Continued.

business they were imported to do. 2. They attack, harass, fight against, dispossess, drive away, and sometimes actually kill various of our native birds which are much more insectivorous by nature than themselves, and which might do us better service if they were equally encouraged. 3. They commit great depredations in the kitchen-garden, the orchard, and the grain-field. 4. They are personally obnoxious and unpleasant to many persons. 5. They have, at present, practically, no natural enemies, nor any check whatever upon limitless increase. One suggestion and two recommendations are made. The suggestion is, to make the experiments obviously necessary to determine exactly what the birds eat in this country: to examine the stomachs of say five hundred sparrows, killed in places infested with noxious insects, at the height of the season, and see if insects form any considerable portion of their food. The recommendations are: I. Let the birds shift for themselves; that is, stop feeding them, take down the boxes, put them on the same footing as other birds. II. Abolish the legal penalties for killing them. The article was several times reprinted, and reproduced in editorial abridgment by the press of the country at large.

1878. Coues, E. The Ineligibility of the European House Sparrow [Passer domesticus] in America. < *The Chicago Field*, Aug. 31, 1878.

In full from The American Naturalist, xii. No. 8, August, 1878, *q. v.*

1878. Coues, E. The Ineligibility of the European House Sparrow [Passer domesticus] in America. < *The Country* (N. Y.), Aug. 3, 1878, pp. 233, 234.

Reprinted in full from The American Naturalist for August, 1878.

1878. Dixwell, J. Sparrows [Passer domesticus]. < *Boston Daily Advertiser*, about Mar. 7, 1878.

Apologizing for "all real or imaginary insults" T. M. Brewer may have been offered by the publication of the results of dissection of 39 Sparrows in whose gizzards no insects were found.

1878. Editor. The English Sparrow [Passer domesticus]. < *Forest and Stream*, Apr. 18, 1878.

Editorial note, presenting to favorable notice a letter from J. Akhurst defending the Sparrow. It is the same letter which appeared in the Boston Journal, Mar. 15, 1878.

1878. Editor. The Sparrow [Passer domesticus]. < *Massachusetts Ploughman*, Aug. 3, 1878.

Extracts from an article by H. Hagen, which appeared in the American Agriculturist, favorable to the Sparrows.

1878. Editor. Sparrows [Passer domesticus] and Skylarks. < *Forest and Stream*, xi. Dec. 19, 1878, p. 406.

Their introduction on Long Island.

1878. Elliot, D. G. American [Spizella socialis] *vs.* English Sparrows [Passer domesticus]. < *Forest and Stream*, Aug. 15, 1878.

Narrating an encounter in which the former worsted the latter.

1878. "Fruit Buds." Those English Sparrows [Passer domesticus]. < *The Post* (Washington, D. C.), Mar. 22, 1878.

Molestation of native birds, and destruction of fruit, by the "little pests known as English Sparrows."

1878. Gentry, T. G. The | House Sparrow | at | Home and Abroad, | with some | concluding remarks upon its usefulness, | and | copious references to the literature of the subject. | By | Thomas G. Gentry, | [etc., 5 lines.] | Philadelphia: | Claxton, Remsen, and Haffelfinger. | 1878. 1 vol. 8vo. pp. iii–viii, 9–128, with colored frontisp. pl. of Passer domesticus ♂ ♀.

One of the good results of the controversy has been the appearance of this work, in which the whole subject is set forth at full length, in clear light, with every regard for impartiality. Mr. Gentry's careful and critical survey of the situation renders his presentation of the case conclusive. All the charges that have been brought against the Sparrow are discussed and substantiated, while due weight is given to the other side of the question. It is a very useful book, which should be widely circulated. The following are the main heads: Introduction (classificatory, etc.), p. 9. The Sparrow in Europe, p. 14. The Sparrow in America, p. 33. Evidence, both positive and negative (*i. e.* for and against), of the Sparrows' usefulness in America, p. 74. Concluding remarks, p. 96. Appendix (bibliography), p. 113.

1878. "GERMANIA." English Sparrows [Passer domesticus]. < *Evening Transcript* (Boston, Mass.), Mar. 4, 1878.

Asking fair play for his friends, the Sparrows, whom, he states, he treats with respect; in return for which "they give me considerable chirping, very cheerful to my ear."

1878. GLEASON, E. B. Blue Bird [Sialia sialis] *vs.* Sparrow [Passer domesticus]. < *Forest and Stream*, x. May 2, 1878, p. 235.

The Sparrow worsted in the encounter.

1878. [GRINNELL, G. B.] The English Sparrow [Passer domesticus] in America. < *Forest and Stream*, xi. Sept. 5, 1878.

Comments upon recent phases of the discussion of the utility of *Passer domesticus* in America; and additional testimony.

1878. HAGEN, H. A. The Sparrows [Passer domesticus].—Professor Hagen's Views. < *Boston Evening Transcript*, Mar. 28, 1878.

A temperate and well-considered article, largely devoted, however, to the state of affairs in Europe This is the mistake, it would seem, that some otherwise well-informed authors are apt to make. As I have elsewhere shown, the cases are not parallel at present, and any argument derived from considerations that may apply in Europe fail of equal applicability to the present state of affairs in America. The article will well repay perusal as one of the most satisfactory statements that can be drawn up in favor of the Sparrows. Its candor and sincerity are conspicuous by comparison with much that has been advanced on this side.

1878. HALDEMAN, S. S. Sparrows [Passer domesticus] and Pewees [Sayornis fuscus]. < *Amer. Nat.* xii. No. 2, 1878, p. 124.

The former attacking the latter.

1878. "HANOVER." English Sparrows [Passer domesticus]. < *Boston Daily Advertiser*, May 16, 1878.

Statement that the Sparrows "lead other birds to come near dwelling-houses instead of driving them away"!

1878. HOFFMAN, W. J. Notes on the Nesting Habits of the English Sparrow [Passer domesticus]. < *Amer. Nat.* xii. No. 4, Apr. 1878, pp. 251, 252.

Repeated destruction of Robins' nests by the Sparrows.

1878. HOVEY, R. Another Opinion [respecting Passer domesticus]. < *Forest and Stream*, Nov. 14, 1878.

"I differ with Mr. Roosevelt concerning the insectivorous habits of the bird."

1878. INGERSOLL, ERNEST. The Sparrow in America. < *The* [London] *Field*, li. Mar. 23, 1878, p. 335.

A sketch of the colonization of *Passer domesticus* in the United States, and an account of the discussion of the Nuttall Ornithological Club upon the question of its usefulness.

1878. "J." The Sparrow [Passer domesticus] Nuisance. < *The Post* (Washington, D. C.), Sept. 20, 1878.

"The sparrows are an increasing pest. . . . If there is a law to protect them it should be repealed and the sparrow nuisance abated."

1878. "JUSTITIA." A Word for the Sparrow [Passer domesticus]. < *The Post* (Washington, D. C.), Sept. 21, 1878.

"Now, Mr. Editor, 'let justice prevail though the heavens fall'", &c.

1878. MAYNARD, C. J. The Sparrow [Passer domesticus] War. < *The Scientific Farmer* (Boston), iii. Feb. 1878, p. 27.

A sketch of the discussion respecting the merits and demerits of the Sparrows.

1878. "MUNCHAUSEN." The Sparrows [Passer domesticus]. < *Evening Transcript*, Feb. 27, 1878.

The person who selected this suggestive pseudonym says: "There seems to be a growing impression that one or two of the boys of the Nuttall Club rather overloaded their fowling pieces in their war on the sparrow."

1878. "NATURALIST." The English Sparrow [Passer domesticus]. < *Forest and Stream*, xi. Oct. 3, 1878, p. 179.

1878. NEWCOMB, R. L. The English Sparrow [Passer domesticus]. < *The Country* (New York), Aug. 10, 1878.

Unequivocal evidence of decrease in numbers of native birds since the Sparrows became numerous.

1878. "NORMAN." Sparrow [Passer domesticus] and Starling. < *Forest and Stream*, x, June 20, 1878, p. 379.

The desirability of their introduction into the country.

1878. NUTTALL ORNITHOLOGICAL CLUB. Sparrows [Passer domesticus].—The Nuttall Ornithological Club decides against them. < *Boston Daily Advertiser*, vol. cxxxi, No. 47, Feb. 23, 1878.

The inside history of this article is: Some time about January, 1878, Dr. Brewer was in my office in Washington, where some words on the subject grew a little heated toward the close of the interview, when I proposed that it would be well to ask the Nuttall Club to take up and sift the matter, that we might get at the facts, if possible. The reply was complimentary neither to the sincerity of my proposition nor to the ornithological ability of the Club, of which he was a member. I soon after addressed to the Club a communication inviting their attention to the matter, suggesting a full and fair discussion of the subject in open meeting, and representing that the Club was specially well qualified to come to just conclusions, consisting, as it did, of a number of working ornithologists of recognized ability and experience, who were perfectly familiar with the case as presented in Boston, Cambridge, and vicinity. The meeting was soon after held. Notice was sent to the resident members of the proposed consideration of the question, and corresponding members were also invited to take part in the discussion. Dr. Brewer for some reason did not attend the meeting. The report of the meeting, constituting the present article, indicates that Mr. J. A. Allen, Mr. William Brewster, Mr. H. A. Purdie, Mr. H. D. Minot, Mr. Ruthven Deane, and others, participated in the discussion. Mr. Allen's views are not here presented. All the testimony here reported is unfavorable to the Sparrows, but need not be here analyzed, as it is only what every competent and unprejudiced observer knows; it is explicit, emphatic, and irrefragable, substantiating every count that has been brought against the birds. The article includes an open letter to Dr. Brewer from John Dixwell, M. D., stating that in 39 individuals, taken at the height of the canker-worm pest, no trace of insect food could be found on dissecting; the publication of which letter gave offence to Dr. Brewer, who considered it an unwarrantable liberty to take with his name. "At the close of the discussion a vote was taken on the question of whether or not, in the opinion of those present, the further increase of the house sparrow in this country was desirable. The result was a unanimous negative." Dr. Brewer's action upon the testimony thus offered by experts may be gathered from other titles in this Bibliography.

1878. NUTTALL ORNITHOLOGICAL CLUB. Sparrows [Passer domesticus] brought to Judgment.—Discussion of the Nuttall Ornithological Club upon the Merits and Demerits of the English Sparrow in the United States. < *The Country* (newspaper of New York), Feb. 23, 1878, pp. 245, 246, fig.

This is the full report of the meeting, communicated officially by the Club, occupying nearly two pages (5 columns). It gives much matter additional to that published in the Boston Daily Advertiser, and is specially important in presenting at length the views of J. A. Allen, and including communications from Mr. R. Ridgway and Dr. C. C. Abbott, not given in the Boston report of the proceedings. Allen's carefully-considered testimony, though well guarded, is, emphatically and explicitly, against the Sparrows. "Mr. Allen further stated, that every ornithologist of note throughout the country who has expressed himself upon the subject (and nearly all have done so) has, almost without exception, declared against the Sparrow. Not a few of them consider their rapid increase an alarming evil, which will soon call for legislative action to hold it in check."

1878. "ORNIS." [G. A. STOCKWELL.] The English Sparrow [Passer domesticus].—His Enemies and Friends—What a Port Huron Naturalist has to Say on the Subject. < *Port Huron Times*, March 16, 1878.

Says the writer: "The opposition to the sparrow began with Dr. Elliott Coues, a young ornithologist of considerable talent, though possessing more assurance than knowledge. . . . He started the ball, which has since been kicked by his satellites, in an article in the Field and Forest, [quotation from Coues and Prentiss follows]. Ridiculous as the above paragraph is, particularly as coming from a would-be scientist, it was immediately taken up and made the battle cry of the Nuttall Ornithological Club. . . . Chief among this coterie of ornithologists (?) is H. D. Minot, a youth who has the credit of publishing the most execrable, and monstrously inaccurate, work on birds extant." After more in this strain, there appears a letter from Mr. John Galvin, disagreeing with the observations of nearly all other persons. Still more curiously, the writer continues: "As final evidence, I quote from a personal letter received from Dr. Thos. M. Brewer." This letter, signed "Very cordially yours," rehearses matter with which the public has become familiar. I had some trouble to ascertain the authorship of this article; I saw a letter from the editor of the paper stating that it was written by G. A. Stockwell; and I saw a letter from G. A. Stockwell stating that he did not write it.

1878. PURDIE, H. A. The Sparrows [Passer domesticus]. < *Evening Transcript*, Mar. 19, 1878.

Covering a copy of *The Country* of February 23, 1878, which contained the full report of the Nuttall Club's proceedings, Mr. J. A. Allen's testimony having been omitted from the report as published in Boston. Mr. Allen's testimony follows.

1878. PURDIE, H. A. The "English Sparrow" [Passer domesticus] in Boston. < *Massachusetts Ploughman*, July 20, 1878.

A column of testimony in the matter of the *Orgyia leucostigma*. It is evident from this that the Sparrows are not efficient in destroying this noxious insect. The writer states, further, that the apparent attacks of the Sparrows upon the cocoons were not to devour the contents, but the spiders and certain parasites, which are the natural foes of the tussock moth!

1878. PURDIE, H. A. "History repeating itself." < *Boston Advertiser*, July 16, 1878.

Adopting Dr. Brewer's epigrammatic title for the fact that what had been observed a year before respecting abundance of *Orgyia leucostigma* might be verified by any one who would now examine the shade-trees of Boston.

1878. RILEY, C. V. Anent the English Sparrows [Passer domesticus]. < *Evening Star* (Washington, D. C.), Dec. 25, 1878; *Pacific Rural Press*, Jan. 25, 1879; and several other reprints.

A letter to Major J. W. Twining, District Commissioner, conveying important evidence against the Sparrows, from a well-known expert in economic entomology. It appears that whatever good the Sparrows may have done by destroying canker-worms is more than counterbalanced by the room thus made for the increase of even more destructive insects. The article gives new and valuable testimony from an authoritative source, and should be carefully considered.

1878. ROOSEVELT, R. B. Spare the Sparrow [Passer domesticus]. < *Forest and Stream*, Oct. 10, 1878.

The five categories of persons who defend the Sparrow, as set forth by E. Coues, seem to have made an impression on this gentleman, who, without saying to which one he may belong, begins his article thus: "I lately saw an article from Dr. Coues, in which he renews his abuse of the sparrow, or, to speak more accurately, of those who approve the sparrow. He divides the advocates and supporters of the foreign little bird into five classes, four of which he calls idiots, and the fifth weak-minded. This is a very powerful and almost conclusive argument against the sparrows." But Mr. Roosevelt may be reminded that no such epithets occur in E. Coues's article. The writer goes on with a very pleasant, gossipy article in favor of the Sparrows, in a rather amiable and courteous than logical or convincing strain.

1878. SMITH, EVERETT. The Sparrow [Passer domesticus] Pest. < *The Country*, i. Feb. 9, 1878, p. 213.

Contrasting the good condition of shade-trees protected by coal-tar with the state of those left to perish by being entrusted to the attentions of the Sparrows. "My observations of the habits of these birds in their native homes led me to the belief that for a pest we might be rid of through other means we should substitute a pest that it would be extremely difficult, if not impossible, ever to get rid of—and that is the sparrow pest."

1878. "SUBURB." A Word for the Sparrows [Passer domesticus]. < *Evening Transcript* (Boston, Mass.), Feb. 26, 1878.

Statement of his impressions respecting the Nuttall Club, and his indifference in the matter. "To the average human being, it is of no consequence whether the bird in front of his house is called a Fringilla or a Chinchilla; what he wants is a bird."

1878. ——— The Sparrow [Passer domesticus] in America. < *Unknown paper*, about August, 1878.

Abridged from E. Coues's article in the American Naturalist for August, 1878.

1878. ——— The Sparrow [Passer domesticus] Nuisance. < *Times and Dispatch* (Reading, Pa.), vol. xli. No. 109, Aug. 8, 1878.

Editorial excerpts from E. Coues's article in The American Naturalist for August, 1878. "The array of charges brought against that quarrelsome alien is overwhelming. The Lancaster *New Era*, from which we quote, says 'no man either in this country or elsewhere is more competent to discuss the question than Dr. Coues, and what he says we are willing to accept as authority. His words will have more weight among naturalists than all the silly sentimentality which the host of ignorant people who have discussed the sparrow question have brought forward.'" The gist of Dr. Coues's recommendations upon the subject completes the article.

1878. ——— The English Sparrow [Passer domesticus] at the Bar. < *New York Times*, Sept. 3, 1878.

Three letters from correspondents. 1. "G. H. G." argues pro and con. 2. "I. H. B." reasons emphatically against the birds: "talk with an Englishman, a German, or an Italian, who knows anything about their habits, and he will laugh at the folly of Americans for introducing them here." 3. "N. D." does not apparently believe that they harass native birds.

1878. ——— [A column or more on the Sparrow question.] < *New York Times*, Sept. 2, 1878.

Not seen.

1878. ——— Etchings and Echoes. < *Daily Evening Traveller* (Boston), Aug. 13, 1878.

"Thousands of Sparrows visit the grounds about the East Boston grain elevator, daily, and it is apparent that they prefer the wheat brought from the West to the insects that swarm."

1878. ——— The Sparrow [Passer domesticus] Question in England. < *The Chicago Field*, Sept. 28, 1878.

Letters from S. E. Garnett and E. Anthony, against and for the bird.

1878. ——— The English Sparrow [Passer domesticus]. < *Forest and Stream*, Oct. 3, 1878, pp. 179, 180.

That the Sparrow may be a blessing in one place and a nuisance in another is brought forward by a correspondent from Bay Ridge, Long Island, who signs himself "Fair Play for the Sparrows." This is followed by "a delightful picture of a home surrounded by feathered songsters," signed "Naturalist," who states that he has more song-birds about him than he had before the Sparrows came.

1878. ——— An Enemy to the Sparrows [Passer domesticus]. < *The Post* (Washington, D. C.), Nov. 22, 1878.

A paragraph stating that an article entitled the "Ineligibility of the European House Sparrow in America" had been sent by its author to the Commissioners of the District, accompanied by a letter recommending measures to be taken to abate the nuisance.

1879. Anon. [Brewer, T. M.] Conclusive Testimony [that Passer domesticus does not molest native birds]. < *Boston Journal*, Jan. 17, 1879.

Mr. G. H. Coues having shortly before published a list of sixty species of birds observed in Brooklyn, New York, where the Sparrows are abundant, T. M. Brewer anonymously regards this as "conclusive testimony." Yet by parity of reason it would be maintained that hawks, and owls do not molest other birds, there being several of these rapacious birds in the list. Nor does the writer stop to consider how many more species more numerously represented might have been found there but for the Sparrows.

1879. Bagg, E., *jr.* A Plea for the Birds [of America, against the invasion of Passer domesticus]. < *Utica Morning Herald and Daily Gazette*, Feb. 5, 1879.

A fair and extended statement of the case.

1879. Browne, F. C. Advice unheeded. < *Forest and Stream*, Jan. 30, 1879.

Showing that we had been duly forewarned by H. J. Bruce, who, in an article on the Birds of India, after quoting Dr. Jerdon as saying that the *Passer* of that country was one of the greatest pests, goes on to state his apprehensions that the experiment of introducing the birds in America would prove ill-advised and inexpedient. Dr. Bruce's remarks will be found in The American Naturalist, vi. 1872, pp. 468–470.

"If the sparrow is to be introduced into America to devour the larvæ of insects, it should be remembered that it is for the most part a feeder on grain, seeds and buds and that it only makes a business of devouring grubs during its breeding season. . . . I trust that those who have to do in this matter will act advisedly, lest they should introduce that which will eventually become as great a nuisance in its way, as the curculio and the cankerworm." This prescience of 1872 was, as Mr. Browne says, "advice unheeded."

1879. Coues, E. Latest from the Seat of War in Sparrowland. < *Forest and Stream*, Feb. 27, 1879.

Merely satirizing the anonymous article entitled "Conclusive Testimony," which appeared in the Boston Journal of January 17, 1879. The writer enquires, further, respecting that Napoleonic confidence in Sparrows which the Bostonians display by using coal-tar to protect their trees from the insects which the Sparrows are declared by some to have effectually destroyed.

1879. EDITOR. [G. B. GRINNELL.] This is Evidence [against Passer domesticus as a destroyer of insects]. < *Forest and Stream*, xii. No. 10, Apr. 10, 1879, p. 190.

Analyzing and commenting upon C. J. Maynard's results of dissection of 56 sparrows in whose stomachs no insects were found.

1879. HOAG, JULIA S. The English Sparrow [Passer domesticus]. < *Forest and Stream*, Feb. 20, 1879.

An extended and impartial article, largely historical, and an interesting contribution to the subject. "Inasmuch as nearly all the reliable statements with regard to the sparrow are decidedly to his discredit," &c. "In 1874, Dr. Thomas M. Brewer recorded himself in favor of the sparrow, and, I believe, still maintains that attitude towards them. . . . This conviction has been forced upon me, though it may now seem a reiteration of Dr. Coues, to those who have followed him, that scientific testimony is strongly adverse to the sparrow, and sentiment only is his warm ally." E. Coues's paper in The American Naturalist for August, 1878, is largely cited in evidence.

1879. HOWELL, E. H. A Check on the Sparrows [Passer domesticus]. < *Forest and Stream*, Mar. 13, 1879, p. 106.

Scops asio feeding on the Sparrows. The editor wishes the owl "good speed in the good work."

1879. INGERSOLL, E. Sketches by a Traveler. < *The Chicago Field*, Apr. 12, 1879.

Having seen the MS. of an article by E. Coues "On the Present Status of *Passer domesticus* in America," etc., the writer devotes about half of his "Sketch" to the consideration of this subject, with extracts from the then unpublished bibliography with which Dr. Coues's article concludes.

1879. INGERSOLL, E. War on the Sparrows [Passer domesticus]. < *Evening Post* (N. Y.), Apr. —, 1879.

Dated from Washington, April 2, and doubtless published within a few days. The subhead—"What Dr. Elliott Coues is doing to prevent the destruction of Western crops—his reasons for believing that the English Sparrow is scarcely less dangerous than the grasshopper—a warning to the West and a scheme for avoiding the danger"—indicates the character of the article, which is based upon that published by E. Coues in Bull. U. S. Geol. Surv. vol. v, No. 2, pp. 175–194.

1879. MAYNARD, C. J. The English Sparrow [Passer domesticus]. < *The Scientific Farmer* (Boston), Mar. 1879, pp. 35–37, figs. 25, 26.

An important article, giving direct testimony, from original dissections, of the nature of the Sparrow's food. In not a single one of the 56 cases was a trace of insect food found.

1879. READ, M. C. The English Sparrow [Passer domesticus] and our Native Song-Birds. < *Amer. Nat.* xiii. No. 3, Mar. 1879, pp. 190, 191.

"It cannot be supposed that the native songsters retire in anticipation of the intrusion of their foreign cousins, and some other cause for their disappearance must be sought."

1879. "S." The English Sparrow [Passer domesticus]. < *Cultivator and Country Gentleman*, Jan. 30, 1879.

The damage done to corn. "These pests alighted upon a piece of field corn, tore open the ends of the ears with their strong bills, and fed upon the soft grain. . . . In this way nearly every ear over a large portion of the field was damaged before it became too hard for them to operate upon."

1879. S[CHIEFFELIN?], E. The Sparrows [Passer domesticus]. One who took part in bringing them to this city now takes up the pen in their defence. < *N. Y. Evening Post*, Apr. 15, 1879.

A well-written article, doubtless by Mr. Eugene Schieffelin, saying what can be said in defence of the birds, but largely supporting his statements by facts of the case as observed in Europe. The paper is one of the fairest and otherwise best of those that have been written on the off side of the controversy.

1879. S. S. O. The English Sparrow [Passer Domesticus]. < *Unknown paper*, Jan. 16, 1879.

Damage done to corn.

1879. "W. C." The English Sparrow [Passer domesticus]. < *Gardener's Monthly*, Feb. 1879.

"Concerning the English Sparrow eating fruit I can speak positively."

Art. XII.—The Laramie Group of Western Wyoming and Adjacent Regions.

By A. C. Peale, M. D.

In this paper I wish briefly to note a few facts in reference to the occurrence of the Laramie Group or Post-Cretaceous Formation in Eastern Idaho and Western Wyoming (the district examined by me in the summer of 1877).

The term *Post-Cretaceous* was first used by Dr. C. A. White,[*] although the transitional character of the strata so referred has long been recognized and insisted upon by Dr. Hayden. This transitional character of the Laramie Group is also acknowledged by Prof. E. D. Cope, who says: "In arranging the Laramie Group, its necessary position is between Tertiary and Cretaceous, but on the Cretaceous side of the boundary, if we retain those grand divisions, which it appears to me to be desirable to do."[†]

Professor Cope also gives a table of the faunæ of the Laramie Group and the correlated French strata (Sables de Bracheux and Conglomerate de Cerny), and says:[‡] "The result is clear that the French and American formations together bridge most completely the interval between the Cretaceous and Tertiary series, as has been anticipated by Hayden, in America, on geological grounds."

It is well known that the evidence of palæobotany is in favor of the Tertiary age of the group, while invertebrate palæontology is negative in its evidence.

It is unnecessary to enter into any discussion on the subject at this place. As long as the evidence presented by the various organic remains is so conflicting, being partly Tertiary and partly Cretaceous in its testimony, it seems advisable to retain the name Post-Cretaceous for the Laramie Group.

In the district assigned me for examination in 1877, there were two areas in which the Laramie Group formed a considerable portion of the surface rocks, viz, on the western side of the Green River Basin in Western Wyoming, and in the region of Bear River and Smith's Fork. I shall now briefly describe these two areas.

Green River Basin.—In going westward from Green River, in the northern part of the Green River Basin, the sandstones and shales of the Green River Group and the variegated beds of the underlying Wahsatch

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[*] Bulletin U. S. Geol. and Geograph. Survey of the Territories, vol. iii, No. 3, p. 608.

[†] Bulletin U. S. Geol. and Geograph. Survey of the Terr., vol. v, No. 1, pp. 38, 39.

[‡] Ibid., pp. 37, 38.

Group are observed to rise gently as the Wyoming Mountains are approached. The Wyoming Mountains extend north and south in longitude 110° 48′. Before they are reached, however, we come to an anticlinal fold, which forms a ridge that is approximately parallel to the mountains and about six miles east of them. This fold, named Meridian Fold, marks the rim of Green River Basin in this region, and is composed of Jurassic and Cretaceous strata. Between the ridge thus formed and the Wyoming Mountains there is a depressed area named Meridional Valley, in which there is a series of gray and greenish sandstones and shales resting conformably upon the Cretaceous beds. They are several thousand feet in thickness and dip to the westward, abutting against the westward-dipping Carboniferous limestones of the Wyoming Range. The junction marks the line of a fault of some 2,000 or 3,000 feet, the downthrow being on the east. At two points only were fossils found along the west side of the Green River Basin. The following were recognized:

Campeloma macrospira.
Pyrgulifera sp.?
Corbula sp.?

Few as they are, they are sufficient to warrant the reference of the beds from which they were obtained to the Laramie Group. The line of junction of the Laramie sandstones and the Carboniferous limestones is generally obscured by the *débris*, but at several places the contact was so well seen as to leave no doubt of its being a fault, and not a line marking the ancient shore-line of the Laramie Sea. There was also no evidence in the sandstones of the immediate proximity of a shore-line during their deposition, as there was in the beds of the Wahsatch Group. The line of the fault does not extend in a straight line along the eastern front of the range; but the Laramie sandstones fill bay-like recesses in the range. This is especially the case towards the north, and led me at first to think that the range had formed a part of the shore-line of the Laramie Sea.

In the northern part of Meridional Valley, fragments of the Wahsatch Group are seen resting unconformably on the Laramie sandstones, and continuing also over the ends of the Cretaceous strata, although usually the Wahsatch Group does not extend west of the Meridian fold, where it is seen resting on the upturned edges of Jurassic and Cretaceous strata. The Green River Group does not usually reach the summit of the ridge, seeming to have been eroded away as the beds were uplifted to form its eastern slopes, and now it forms bluffs facing the ridge just as the place of greater inclination is reached.

The portion of the Wahsatch Group resting on the older beds probably represents only the upper part of the group, and has a thickness of only 700 or 800 feet. Its conglomerates contain pebbles of Carboniferous limestone, evidently derived from the adjacent Wyoming Range. It is evident, therefore, that precedent to the deposition of these beds and subsequent to the folding of the Laramie Group, as here exposed, there must have been a period of erosion. I will refer to this again.

Smith's Fork and Bear River Region.—Along the east side of Bear River, between the valley and the bounding mountains, is a comparatively low area filled with gray and greenish-gray sandstones, which sometimes form low hogbacks. These rocks are folded conformably with the underlying older beds, and extend northward along Smith's Fork and Salt River into the region of Snake River, where they are beyond the limits of our district.

On Twin Creek, a branch of Bear River, joining it from the east, these sandstones are seen dipping to the westward 40 or 45°, and contain coal-beds, in connection with which the following fossils were found:

Corbicula (*Veloritina*) *durkei.*
Rhytophorus meekii.
Goniobasis chrysaloidea.
Goniobasis chrysallis.
Volsella (*Brachydontes*) sp.?
Pyrgulifera humerosa.
Membranipora ?
Ostrea sp.?
Neritina sp.?

Resting on the beds containing these fossils were the red Conglomerates of the Wahsatch Group, dipping to the eastward about 5°. This is about the same unconformability noted on the west side of the Green River Basin.

On Smith's Fork of Bear River, three miles above its mouth, and about twenty miles north of the Twin Creek locality, coal-beds again occur in gray sandstones and contain *Unio vetustus* and other obscure Laramie forms. Twenty miles farther north is another fossil locality, from which the following were obtained:

Corbicula (*Veloritina*) *durkei.*
Corbula pyriformis.
Goniobasis chrysaloidea.
Goniobasis cleburni.
Pyrgulifera humerosa.
Unio vetustus.
Ostrea sp.?

The more northern extension of these beds was not carefully traced, but it was evident that they form a large part of the surface between Salt River Valley and the Blackfoot region south of Snake River.

GENERAL REMARKS.

The bottom of the Laramie Sea appears to have been subjected to a constant and gradual subsidence, as the character of the strata indicates their deposition in shallow waters, and the thickness attained is from 3,000 to 5,000 feet.

The lower sandstones are similar to those of the Fox Hills Group of the Cretaceous, and the two formations are conformable. As far as noted, the conformability extends from the Carboniferous to the top of the Laramie Group, as exposed in the district under consideration.

There were some indications in Ham's Fork Cañon that the Laramie Group rested on the upturned edges of the Triassic Red Beds, but the relations were obscure, and all other occurrences seemed to indicate that the Laramie Group is conformable to the underlying formations.

It should be stated here that the western shore-line of the Post-Cretaceous has not been identified, and that it is probable that if the peripheral portions of the Laramie Group could be observed, as Dr. White remarks, some unconformity would be seen between it and the Fox Hills Group. He says: "There must necessarily be some unconformity between these groups in the peripheral portions of the Laramie, because, as will be shown farther on, the area upon which its waters rested was cut off from the great open sea by the elevation of portions of the bottom upon which the Fox Hills deposits were made."*

Wherever the Wahsatch Group was seen in superposition with the Laramie Group in our district, it was markedly unconformable, and also represented only the upper portion of the group. The regions in which it occurred were near the shore-lines of the Wahsatch Lake, and its conglomerates were seen resting unconformably on Silurian, Carboniferous, Jura-Trias, and Cretaceous strata, as well as on Post-Cretaceous. A considerable portion of the area that was below the level of the Laramie Sea became land probably before the end of the period, as the condition of the strata extending from Silurian to the Post-Cretaceous, inclusive, shows that a vast period of erosion intervened between the uplift and the time when the Wahsatch Group, or rather its upper portion, was deposited on the eroded edges of the older beds. This might perhaps be explained by the fact that a subsidence occurred which allowed the Wahsatch Lake to spread gradually over the regions where now we find only the upper beds of the group. This erosion, however, was on an enormous scale, and the whole of it could scarcely have been effected during the early Wahsatch time. Again: the fossils from the group in our district are all equivalent to those of the Bear River Estuary Beds, which Dr. White is inclined to think are older than the fossils from the group at other localities. He therefore thinks the upward movement of the Post-Cretaceous may have begun before the complete deposition of the strata composing the group.

This fact as to the age of the fossils taken in connection with the stratigraphical facts just noted render it very probable that the beds of the group exposed in Western Wyoming and Southeastern Idaho represent only the lower portions of the Laramie Group.

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*Bulletin of U. S. Geol. and Geograph. Surv. of the Terr., vol. iv, No. 4, p. 866.

In the more central and eastern localities of the group, the overlying Tertiaries are conformable to the Post-Cretaceous, and the whole of the latter may probably be present, although even there there have been unconformities noted in the strata of the Laramie itself by Dr. White and others, so that, as Bannister remarks in the American Journal of Science and Arts for March, 1879 (p. 245): "The evidence" "indicates that the Laramie epoch was throughout one of stratigraphic disturbance rather than that there was only one great orographic change at its close."

In Western Wyoming and adjacent regions there was intense orographical disturbance after the deposition of the beds that there represent the group. Then also occurred the folding that resulted in the formation of Meridian fold and the Wyoming and Salt River ranges, which was accompanied by the faulting seen along the eastern sides of the two ranges. The region westward from what is now the Green River Basin was lifted above the level of the sea and added to the land area which was farther west, and had been defined at the end of the Carboniferous. This uplift included the Wahsatch region of our district that lies north of latitude 41° 45′. In this region there are a number of isolated monoclinal ranges, which are the eroded remnants of anticlinal folds. The faults that are found farther south in the areas explored by the Fortieth Parallel Survey have in this region become ordinary folds. Speaking of these monoclinal ridges, King says:* "The frequency of these monoclinal detached blocks gives abundant warrant for the assertions of Powell and Gilbert that the region is one prominently characterized by vertical action; yet when we come to examine with greater detail the structure of the individual mountain ranges, it is seen that this vertical dislocation took place after the whole area was compressed into a great region of anticlinals with intermediate synclinals. In other words, it was a region of enormous and complicated folds, riven in later time by a vast series of vertical displacements, which have partly cleft the anticlinals down through their geological axes, and partly cut the old folds diagonally or perpendicularly to their axes."

In regard to the monoclinal ridges within the limits of the district examined by me, the evidence is not difficult to obtain that they are simply the eroded fragments of anticlinals. The erosion forming them took place in the period which began with the Post-Cretaceous uplift, and has continued ever since. The faulting in the Wyoming and Salt River Ranges, as I have already stated, was probably synchronous with folding that occurred there.

Everywhere in the district there is perfect conformability from the Cambrian to the top of the Laramie as it is exposed in the district. This Laramie, as already stated, probably only represents the older portions of the group. Its fossil remains appear to indicate this. The fossils of the more eastern Laramie Group are not found in it, nor have the fossils of the former been found in the latter, and yet both have been considered conformable to the Fox Hills Cretaceous. If they represent different portions of the group, localities may yet be discovered in which the two will be in superposition. This, of course, is for the present a mere speculation, yet it seems to me that the facts point to the indication that these two localities represent two portions of the group separated by a period of orographic disturbance.

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*Report Geol. Expl. Fortieth Parallel, vol. i, Systematic Geology, p. 735.

CONCLUSION.

In conclusion, I briefly recapitulate the points indicated by the facts observed in Western Wyoming and Southeastern Idaho.

1. During the period represented by the deposition of the Laramie Group as observed in the district, there was a progressive subsidence followed at the close by a general elevation, which perhaps foreshadowed the disturbance which was to take place after the complete deposition of the beds.

2. The fossils of the group thus described are equivalent to those of the Bear River Estuary Beds, which Dr. White is inclined to think are older in their facies than those of more eastern localities.

3. Intense orographical disturbance took place at the end of the deposition of the beds comprising the group in these localities, which resulted in the upheaval of the area west of Green River Basin to beyond the limits of our district, accompanied by great folding and faulting in the strata of the district.

4. It is probable that this disturbance took place before the close of the Post-Cretaceous period, and resulted in the separation of the Laramie Group into at least two portions, an eastern and a western part.

5. There was a period of vast erosion which began in the time immediately following the uplift, and has continued to the present time.

6. Following the disturbance, there was a progressive subsidence by which the western limits of the eastern or newer Laramie beds were overlapped, and which continued until the Upper Wahsatch fresh-water beds were deposited unconformably on the upturned and denuded edges of Silurian, Carboniferous, Jura-Trias, and Cretaceous, as well as the older Laramie strata.

Art. XIII.—On Lithophane and New Noctuidæ.

By A. R. Grote.

Prof. Fernald, on his recent journey to Europe, kindly took with him a series of our Lithophanes to compare with Mr. Walker's types in the British Museum. He took with him in particular specimens of the series of forms which cluster around *L. cinerea* (Riley), and which we have separated in the collection under different names. These are *L. cinerea*, *laticinerea*, *unimoda*, and *cinerosa* n. s. This latter is darker than any of the others, with the paler shadings of very light gray contrasting. It is large, very hairy, and with the orbicular very bright and light gray. This form is taken commonly by the Albany collectors, who regard it as distinct. It has been in MSS. in my collection for a long time, but I have hitherto hesitated to separate it from *laticinerea*. Prof. Fernald writes me the result of his examination, as follows:

"The only *Xylina* which I found in the Walkerean collection, under a different name from what they are known by us, was *Xylina antennata* Walk. (habitat unknown). This is = *X. cinerea* Riley. There can be no mistake on this, for Mr. Butler and my wife both compared them, and we all agree, without the shadow of a doubt."

In my own visit to the British Museum in 1867 I had no North American Xylinas with me to compare, but I noted that *antennata* was a gray species, which I thought I had seen in our collections; but on my return home I could not remember with sufficient accuracy which of the gray forms Mr. Walker had. Prof. Fernald writes further respecting Mr. Walker's other species unidentified by us:

"*X. infructuosa* Walk. is in too poor condition to be certain of; it is near, if not identical with, *X. petulca*. *X. spoliata* is new to me; I doubt its generic location; the eyes are hairy. *X. commoda* is a very dark species, without markings; I doubt if it is a *Xylina*. *X. claufacta* Walk., too poor to determine; not a *Xylina*; hind wings very light or white, save border and costa."

Prof. Fernald has by these observations made it tolerably safe to describe our species, and has settled the synonymy in important points. *L. cinerea* is the only one of the gray forms of our Lithophanes which shows any decided ferruginous or brown shades about the reniform spot or s.t. line and basal dash, as described by Walker, whose description, nevertheless, is far from satisfactory. It is the smallest in average expanse of the gray forms. I refer the student to my Check List, Part II, for the synonymy of this generic term, which should be used in preference to *Xylina*.

Lithophane cinerosa n. s.

♂ ♀. Antennæ white at base; facial hairs mixed with white. Robust and hairy; color dark blackish gray, relieved by the white shading of the orbicular, which is either double or extends below the median vein; figure of 8-shaped. Lines denticulate, more or less distinctly filled in with whitish gray. Hind wings blackish fuscous, with concolorous, white-tipped fringes. Beneath pale gray, with disc of primaries fuscous, finely irrorate, with an irregular extramesial line, and half-open discal spot on secondaries. *Expanse*, 42–44 mil.

Hab.—New York State, in September.

This form is more strikingly blackish and grayish white than the rest, with a darker background of primaries. The ground-color of *cinerea* and *laticinerea* is the same; the latter is larger, without ferruginous tintings; *unimoda* has obliterate markings and a darker, slightly purplish or bluish tint; *cinerosa* is the most distinctly marked and striking of these forms, which may all, in reality, be found to be still genetically connected. Of *cinerosa*, I have examined a very large series in the collections of Messrs. Lintner, Hill, and Dr. Bailey.

Lithophane hemina n. s.

♂. Allied to *disposita*, *petulca*, *signosa*, etc. Darker than *disposita*, longer-winged, and allied to that species in having a black basal dash, but more obscurely colored—dirty wood-brown—resembling *Hadena vulgaris* in this respect, but less warmly tinted. A black stain on submedian fold, where the median lines approximate, as in *signosa.* Terminally, the wing is twice stained with blackish. Spots and lines less distinctly limited than in *disposita*, and more as in *petulca;* orbicular irregular, oblique; reniform wide above. Hind wings fuscous, with fine black terminal line and paler fringes. Beneath, the wings are paler, with distinct black discal spots, subirrorate; the under surface is much like *disposita;* there is a faint irregular line on secondaries, and the discal field of primaries is shaded with fuscous. Thorax a little darker than fore wings; abdomen dusky, with reduced tufts on the dorsum. *Expanse*, 40 mil.

I have seen specimens in Mr. Hill's collection, collected in Lewis County, New York, in September. I am indebted to Mr. Hill's kindness for the type. The species seems to me to stand between *disposita* and *petulca.* There is a curious general resemblance in ornamentation and color between this species and the wider-winged *Hadena vulgaris*, while they are structurally easily distinguished.

Perigrapha præses n. s.

♂. This form has hairy eyes, a broad, flat, straight-haired thorax with a tuft behind the collar, a flattened abdomen (like *Glæa*), a discolorous, slightly excavate collar (somewhat like *Metalepsis cornuta*), and unarmed tibiæ. Head and pectus purplish black, reddish on the hairy front. The tuft behind the collar prevents a reference to *Graphiphora*, and would refer the moth as congeneric with *normani;* but the tuft is far more prominent and ridge-like, and the abdomen is flattened with a diffuse basal tuft. Collar deep reddish; thorax purplish black, as dark as in *Calocampa.* Wings dusky reddish or purplish, almost blackish, a little paler than thorax; all the markings concolorous and indistinct. The lines are of the usual shape, shaded with a paler reddish, making them indistinctly visible; s. t. line rather more distinct, followed by this paler shading. Median spots with a blackish shade between them representing the median shade, less apparent inferiorly; their contour cannot be well made out; fringes blackish. Hind wings paler, dusky reddish, with concolorous fringes, uneven margin, broken terminal line, faint terminal shade, and discal mark. Abdomen dusky reddish, somewhat purplish, darker than hind wings. Beneath, concolorous dusky red, irrorate with black, with a faint even common exterior line, a distinct discal spot on hind wings, and a terminal line broken into dots on primaries and lunulated on secondaries. Feet dusky, marked with pale; antennæ bluntly toothed, brushlike. *Expanse,* 36 mil. Sauzalito, Mr. James Behrens, February.

This species seems to differ from the European *i-cinctum* by the antennæ not being pectinate, and the abdomen being flattened. It differs from *Crocigrapha normani* by the more prominent and sharper mesial tuft and the diffuse tuft at base of the flattened abdomen, which latter is conical in our Eastern species. The antennal structure can only here and there be used to advantage as a generic character in the Noctuidæ. The sides of the thorax are sharper in front in *præses* than in *normani,* and the whole body more flattened. The flattened abdomen is of doubtful value as a generic character, since certain species of *Agrotis* seem only to differ in this particular from the typical form. It may, however, be used later on, when we come to discuss the problem of what may be considered good generic characters in the group.

Orthosia disticha Grote, Proc. Ent. Soc. Phil. 114, 1875.

A specimen from Colorado in Coll. Mr. Hy. Edwards is larger and brighter colored than my type from Texas. The ground-color is paler, more ocher-gray, the median shade angulated and shading the hinder part of the median space of a deep olive-brown; reniform distinctly yellowish. This species may be known by the median shade and the dark dots inaugurating the subterminal line. Whether it is Mr. Morrison's *Caradrina disticha* is now more than doubtful, since I have seen a specimen from Colorado of the species described by me labeled as a new *Orthosia* by Mr. Morrison. Its identity with the Texan form, aside from a little brighter coloring, cannot, I think, be successfully disputed.

Orthosia conradi n. s.

From Mr. A. Conradi, of Bethlehem, Pa., I have received a specimen of a new species which has much the form of *Hadena devastatrix;* the abdomen is untufted, and I refer it provisionally to this genus. A second is sent me by Mr. Hy. Edwards under the number 7185. The entire insect is of a faded ocher-brown, varying in tint, the darker specimens have base and subterminal space a little paler. Stigmata pale; orbicular oblique; reniform upright, stained inferiorly. T. p. line lunulate, of the usual shape, followed by points on the veins; t. a. line waved; both single. S. t. line preceded by a diffuse darker shade, spreading on costa, where it encloses the pale costal dots. Fringes concolorous, faintly checquered. Hind wings dark fuscous, with pale fringes. Beneath, concolorous with common waved line. *Expanse*, 40 mil.

Hab.—Colorado.

Hadena longula n. s.

♂. A large species, which may be compared with *mactata* from the basal dash and the black shade which connects the long claviform with the t. p. line. Fore wings dull pale wood-brown; stigmata concolorous, narrowly edged with black; orbicular outwardly oblique, sub-pyriform, moderate; reniform upright, spreading inferiorly, well-sized. T. p. line followed by a pale shade, angulated opposite the cell, where it is unusually strongly projected, interspaceally lunulate. T. a. line also black, lunulate. A long black basal streak; a curved line on basal space within the internal margin. Claviform well-sized, connected with t. p. line by a black shade-streak, limited more strongly on its inner edge with black. Subterminal line pale, with the usual W-mark well written, preceded medially by rather large black cuneiform marks; fringes brown, uneven, cut narrowly, with pale at extremity of veins. Hind wings pale, with faint extramesial line and wide diffuse pale fuscous borders. A fine broken terminal line. Thorax like fore wings, with the tegulæ edged with darker brown. Beneath, both wings pale, powdered with darker scales, discal dots, and a common uneven extradiscal line. *Expanse*, 42 mil.

Hab.—Nevada, Dr. James S. Bailey.

Hadena modiola n. s.

♀. This species copies *modica*. It is a little smaller, with the body-tuftings reduced. Fore wings colored like *modica*, the median space the darkest, with the claviform shaded with black and the black median shade-line evident, proceeding from the central of three black costal streaks between the stigmata. These latter are pale, the reniform shaded with whitish, with a double ring, a little squarer, but altogether like *modica*. The median space, however, shows no olive-ocher staining as in *modica*, and this species differs at once by the course of the t. p. line, which is nearer the reniform than in *modica*, less exserted opposite the cell, and here straighter and more even throughout, more distinctly pale and less inwardly bent inferiorly than in *modica*. S. t. line as in its ally; the narrow terminal space more blackish inferiorly than in *modica*. Fringes brown, narrowly cut with pale at extremity of veins. Hind wings concolorous fuscous, with paler fringes. Beneath, differing from *modica* by a warmer tinge, an inconspicuous and solid discal spot, and even linear darker shadings. *Expanse*, 27 mil.

Hab.—Wisconsin, Dr. P. R. Hoy.

This species is remarkable for its resemblance to *modica;* but, on close inspection, it is found to offer certain strong distinctional characters.

Hadena fumosa n. s.

♂ ♀. Allied to *curvata*. Darker, with uniformly fuscous black primaries, the stigmata outlined in velvety black. This form wants the bright spot of *curvata* outside the reniform on the t. p. line. The reniform is further from the t. p. line; the t. a. line straighter, less outwardly rounded inferiorly. The lines are faintly accompanied by pale shades. All three stigmata concolorous, distinct. Hind wings pale fuscous; exterior margin medially exserted, the superior indentation less deep than in *curvata*. On the primaries, the t. p. line is more curved inferiorly than in *curvata*, not so rigid in its general contour. Beneath hoary, without the bright tint of its ally, the extradiscal line on fore wings notably angulated superiorly and further from the reduced discal spot than in *curvata*. *Expanse*, 36 mil.

Hab.—Colorado, Mr. Tweedle.

I have received *Hadena curvata* Grote, Bull. B. S. N. S. 2, 157, Sept. 1874, from Mr. Hy. Edwards, under the name of *Dryobota pariæ* Behr., probably an unpublished name.

Hadena (Pseudanarta) flavidens n. s.

♀. Allied to *flava*, but larger. Fore wings blackish fuscous, with the median lines approximate, pale, narrow, even. T. p. line inwardly curved below the large pale rounded reniform to internal margin. T. a. line outwardly curved. S. t. line an irregular pale shade. The markings of primaries not prominent. Hind wings bright yellow, with a black band. Beneath as above, but paler. On primaries, the yellow color is nearly whitish and the costa and terminal space fuscous. *Expanse*, 26 mil.

Hab.—Colorado, Mr. Mead and Mr. Hy. Edwards (4393).

This species differs from *flava* by the t. p. line being nearer the reniform and not outwardly angulate over median nervules. The t. a. line is more outwardly arcuate inferiorly and the lines more even, while the color is fuscous, without brown or white shadings.

Hadena (Pseudanarta) aurea n. s.

♂. Smaller than *H. flava*. Fore wings dark blackish brown, darker from the arcuate single t. a. line over the anterior half of the median space. Reniform pale, whitish, spherical, standing out, the only prominent feature of the dark primaries, repeated beneath; fringes concolorous. The wing is palest about the reniform and over subterminal space. Hind wings orange-yellow, with broad even black costal terminal border; beneath as above. Body parts blackish. This species is remarkable for the similarity between the upper and lower surfaces of the wings.

Hab.—Southern Texas, Prof. J. A. Lintner.

Very different from *flava* by the black costal border of the orange secondaries and the narrower and more even hind border. *Pseudanarta crocea* seems to me identical with *H. flava*, the type of which came from British Columbia; while the Texan form, collected by Belfrage and referred to *flava* by Mr. Morrison, may prove a different species. Pale specimens of *flava* from Colorado look at first sight distinct; but all the markings of the type are produced on the paler ground of the fore wings.

Agrotis versipellis Grote.

Two males from Coll. Mr. Hy. Edwards, labeled "Summit, Sierra Nevada, Cal.", give an extended and hitherto unrecorded habitat for this species. I do not find any variation of importance between these specimens and my material from Maine and Canada.

Agrotis niveivenosa n. s.

♀. This species, which is allied to 4-*dentata*, may be at once recognized by all the veins on primaries being entirely striped with white. It is larger than its allies, with a black streak at base below median vein; black interspaceal marks before the yellow subterminal line, which is interrupted by the white veins; a black submedian streak across the median space; a black streak on internal margin at base; black powderings on cell; ground-color of median space yellow-ocher; stigmata concolorous with black annuli; orbicular small, oblique; reniform moderate, upright, wider inferiorly; median lines obliterate; terminal space blackish; a terminal black narrow line cut by the white veins; fringes dusky ocher. Hind wings pale ocher-fuscous, with diffuse terminal shade; beneath ochery fuscous, immaculate. Head and thorax dusty ocher, with black thoracic stripes; abdomen pale. *Expanse*, 36 mil.

Hab.—Colorado. One specimen in good condition. The species cannot be mistaken. The veins are broadly striped with white.

Agrotis biclavis n. s.

♂. All the tibiæ spinose; antennæ brush-like, with the joints nodose. Allied to *lagena*, but smaller, with pure white secondaries and fringes, which beneath are slightly dusted and show an inconspicuous spot. Color of primaries more like *cicatricosa;* whitish gray, with a faint ocher tinge. Stigmata fused; the white orbicular lying on the cell and entering the upright reniform, which is more angulate and less bent than in *lagena* and centrally stained with ocherous; the stigmata edged with black, except superiorly. A black basal dash extends into the long-whitish and prominent claviform, finely edged with fuscous. Median lines obliterate; subterminal line indicated by a curved series of interspaceal black marks. Veins inconspicuously and finely marked in white. Beneath like hind wings, slightly fuscous on the cell. Abdomen white. Thorax whitish gray. *Expanse*, 32 mil.

Hab.—Arizona, Mr. Hy. Edwards, No. 7168.

Agrotis aratrix Harvey, Bull. B. S. N. S. 3, 74, plate 3, fig. 8.

This species, originally described from Texas, is sent by Mr. Hy. Edwards, under the number 7171, from Arizona. It belongs with the following to the sub-genus *Ammoconia*, characterized by a sharp mesial thoracic tuft.

Agrotis chortalis Harvey, Bull. B. S. N. S. 3, 74, plate 3, fig. 9.

This species, originally described from Texas, is now sent from Prescott, Arizona, by Mr. Hy. Edwards, under the number 7172. Both these and the preceding are, I believe, now recorded outside of Texas for the first time.

Oncocnemis mirificalis n. s.

♀. With bright yellow secondaries and allied to *O. dayi*, rather than to *O. hayesi*. A specimen of the latter is contained in Mr. Hy. Edwards's collection from Colorado. Fore tibiæ with a claw; the remaining tibiæ unarmed. Smaller than *O. dayi*. Fore wings dull brownish, with the stigmata small, distinct. Orbicular elongate, with brown center; reniform with brown central streak, moderate; claviform small, pointed, with brown center; all the stigmata pale, with fine black annuli; a basal fine black streak before the claviform. Lines obsolete, marked on costa. Subterminal, broken into white marks, preceded partially by black cuneate dashes; this line is near the margin, irregular; at the middle of the wing, the longer white dashes nearly attain the margin. Fringes checquered pale and dark. Hind wings bright yellow, without dusky hair at base or transverse markings. A broad bright black terminal band. Fringes whitish, with a blackish basal line. Beneath clear bright yellow, immaculate, with a broad marginal black band on both wings, reaching to the margin, as in *O. hayesi*. Fringes as on upper surface. Head and thorax like fore wings. *Expanse*, 26 mil.

Hab.—Nevada, Coll. Mr. Hy. Edwards.

Mamestra arietis n. s.

♂. This species is gray, with white lines, approaching the Californian *insolens* and the blue-gray European species, such as *cœrulescens*, usually referred to *Dianthœcia*. Thorax and head whitish gray. Fore wings fuscous gray, with yellow points to the dotted subterminal line. Costa distinctly dotted. Median lines blackish, double, distinct, with white included space, rather near together, lunulate. Reniform and orbicular whitish gray, distinct, and well-sized, with darker centers. A terminal dotted line; fringes checquered, with a fine mesial dark line. Hind wings fuscous, with traces of a median shade-line followed by a paler shading. Fringes pale, faintly lined. Beneath fuscous-gray, with common line and dots; line on hind wings irregular; discal mark on primaries near the line. Abdomen fuscous gray. *Expanse*, 33 mil.

Hab.—California, Mr. Hy. Edwards, 7169. Two specimens examined.

This species, though much paler in color and differing in the shape of the t. a. line, is perhaps nearest to the Californian *M. cuneata* Grote.

Apatela felina n. s.

♂ ♀. Allied to *lepusculina*, and formerly, from a single male, I suspected it to be a Western form of the latter. Fore wings of a darker evenly colored bluish gray. Lines obsolete (♀), or barely indicated (♂). A short narrow black basal dash; a second, longer, on submedian fold, reaching nearly to outer margin; a third, more abbreviate and less conspicuous, opposite the cell. A black curved streak replaces the reniform, and a reduced open dot the orbicular on the cell. No terminal line; fringe checquered. Hind wings dusty whitish, perhaps a little paler in the male. Beneath without markings, except two black discal streaks. Head and thorax whitish gray; palpi black at the sides; lateral prothoracic black lines. Abdomen gray. *Expanse*, ♂ 40, ♀ 44 mil.

Hab.—California. Male in my collection; female, Coll. Hy. Edwards.

The male shows indications of the t. p. line by a paler shading, and the orbicular is obsolete.

Dicopis damalis n. s.

♂. Fore tibiæ each with a long black claw; eyes naked; antennæ testaceous, bipectinate. Clear bluish gray. Ornamentation of primaries feebly written. Orbicular round; reniform narrow, curved, upright; the lines are double, and with the spots indicated by pale brown shade-lines; all concolorous with the wings. Thorax shaggy, bluish gray. Hind wings whitish, a little soiled with discal dot, faint terminal line, and whitish fringe. Beneath white, with black discal spot and broken black mesial line. Fore wings gray, with faint broad exterior shade-line. Feet and abdomen gray. *Expanse*, 34 mil.

Hab.—Havilah, California, Coll. Mr. Hy. Edwards.

Distinct from *muralis* by its obsolete markings and gray color. It is brighter, more bluish gray, than *Eutolype rolandi*, and seems destitute of the thoracic metallic scales.

Art. XIV.—Paleontological Papers No. 11: Remarks upon Certain Carboniferous Fossils from Colorado, Arizona, Idaho, Utah, and Wyoming, and Certain Cretaceous Corals from Colorado, together with Descriptions of New Forms.

By C. A. White, M. D.

On former occasions* I have pointed out the fact that, so far as it had been investigated, the great series of strata, referable to the Carboniferous age, which is extensively developed in many portions of the Western Territories, is not susceptible of satisfactory separation into three great divisions or groups co-ordinate with the Subcarboniferous, Coal-measure, and Permian groups of other parts of the world. The facts accumulated up to the present time appear to fully support this view, even as regards the relation of the Carboniferous series of the Western Territories with that of the Mississippi Valley; but there appears to be no reason to doubt that the whole of Carboniferous time is represented by both series. At least invertebrate types, which are respectively characteristic of the two lower groups of the series in the Mississippi Valley, are found in different parts of the series in the Western Territories. It is well known that at several restricted and somewhat widely separated localities in those Territories, and in the neighboring State of Nevada, collections of invertebrate fossils have been made, the species of which not only have close affinities with certain Subcarboniferous fossils of the interior States, but a considerable proportion of them have been found to be specifically identical with certain well known Subcarboniferous forms which are found in the Mississippi Valley and further eastward. But still the fact remains that the existence of the Subcarboniferous as a distinct and continuous group of strata, and separable as such from the succeeding portions of the great Carboniferous series, as it is developed in the Western Territories, has not yet been fully recognized.

As a rule, the lower strata of the Carboniferous series of all that great Western region contain invertebrate forms, if any, which are no more suggestive of their Subcarboniferous age than those are which occur at or near the top of the series. It is true, however, that in the case of the few known exceptions to this rule, and which have just been referred to, the strata are understood to be at or near the base of the great Carboniferous series. It is also true that, as a rule, the Devonian and Upper Silurian series are absent in all that great region, and it may therefore be properly suggested that at those places where characteristic Subcarboniferous fossils are not present in the Carboniferous strata, the full Carboniferous series is not there complete; and that the Subcarboniferous, Devonian, and Upper Silurian strata are all absent from one and the same cause, or from similar causes.

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* See Expl. and Sur. West of 100th Meridian (Wheeler), vol. iv, part 1, p. 16; Geology of the Uinta Mountains (Powell), p. 80; and Ann. Rep. U. S. Geol. Sur. Terr. for 1876 (Hayden), p. 24.

The instances which have just been cited of the discovery of a Subcarboniferous fauna at several localities in that great Western region, if considered without reference to other facts, would seem to prove conclusively the existence of strata there which represent the Subcarboniferous period as distinct from the succeeding portion of the Carboniferous age; but a number of facts already known tend to support an opposite opinion. For example, several types of invertebrate fossils that are elsewhere known only in Subcarboniferous strata have been found at various localities in that region in strata which are evidently higher in the series than we may reasonably suppose the highest Subcarboniferous strata to reach. Moreover, some of these types at least are, in the Western Territories, not only intimately associated with types which characterize the Coal-measure strata further east, but some of the fossils of the latter types are specifically identical with characteristic Upper Coal-measure forms of the Mississippi Valley. In other words, in different portions of the Western Territories there is found to be an unmistakable commingling of Subcarboniferous and Upper Coal-measure types in the same strata. Besides this, so far as I am aware, no geologist who has examined any part of that great region has ever discovered or suggested the existence of a plane of demarkation between the Subcarboniferous and Coal-measures corresponding with that which separates the two groups in the Mississippi Valley.

In this paper three of the Subcarboniferous types just referred to will be noticed, namely, *Archimedes*, *Leptopora*, and *Granatocrinus*. Besides the representatives of these genera, there are among the collections brought in by Prof. St. John from Southeastern Idaho some fragments of a *Spirifer* of the *Syringothyris* type, and one or two species of *Acervularia*. The former type has not yet been found in other American strata at a higher horizon than the Subcarboniferous, and the latter genus is almost equally characteristic of the same group in the Mississippi Valley, although in the Western Territories it is found associated with Coal-measure types.

Some geologists have recognized the Permian division as a separate group of the great Carboniferous series in the Western Territories; but it is safe to say that while certain of the uppermost strata of that series probably represent the *time* of the Permian period, the invertebrate fauna of those strata, so far as it has yet been investigated, affords no proof of the fact, because it possesses no characteristic Permian types, or at least none which are not also common to the great mass of Carboniferous strata beneath. These remarks apply especially to the Carboniferous series as it is developed in Colorado, Utah, Wyoming, and Idaho, and not to the region further eastward, where true Permian strata probably exist.

In the Western Territories the whole Carboniferous series reaches an aggregate thickness of 4,000 or 5,000 feet; and although the strata of the middle portion are, as a rule, more fossiliferous than the others, yet fossils are occasionally found both near the base and the top of the series.

From what has already been remarked it will be seen that so far as invertebrate fossils are concerned, there is great faunal uniformity throughout the whole of this great thickness of strata; and, furthermore, that the prevailing characteristics of that fauna are those of the Coal-measure—especially the Upper Coal-measure—fauna of the Mississippi Valley.

The new specific names which are applied to a part of the forms noticed on the following pages, especially the *Nuculana* and *Bellerophon*, have not been given without some hesitation, because of the close relationship which those forms respectively bear to certain others which are already known and specifically named. The differences seem to be sufficient, however, to warrant this course in accordance with the present usage of paleontologists, and it is further warranted by the necessity of designating those forms by name, that geologists may use them for the purpose of characterizing the strata or the horizons to which they belong. The horizon of the two forms especially referred to is doubtless somewhat higher in the Carboniferous series than the one which the representatives of these species in part characterize in the Mississippi Valley; but Mr. G. K. Gilbert, who collected them, was not entirely satisfied that the strata from which they came were really the uppermost of the Carboniferous series.

ACTINOZOA.

Genus LEPTOPORA Winchell.

Leptopora winchelli (sp. nov.).

Among some collections brought in by Dr. A. C. Peale from near the forks of Logan River, in Bear River Range, near the northern boundary of Utah, are a few specimens of *Leptopora*. This genus of corals was proposed by Dr. Winchell in the Proc. Acad. Nat. Sci. Philad. 1863, p. 2, for a peculiar form, the first, and hitherto the only known, species of which occurs in the Kinderhook division of the Subcarboniferous group at Burlington, Iowa. Being so rare a form, and consequently so little known, I quote Dr. Winchell's generic diagnosis as follows:

"Corallum occurring in thin discoidal masses; cells very shallow, crowded, polygonal, separated by a common cell-wall which is vertically striated; interior of cells filled with a finely vesicular tissue; cups polygonal, concave, elevated in the center and displaying numerous radial lamellæ."

The calyces of the specimens discovered by Dr. Peale are a little smaller and somewhat more irregular than those of the typical forms, and the whole corallum is also a little more delicate. The differences between the two forms are, however, very slight; but it is thought advisable, under the circumstances, to give a new specific designation to the form here especially considered, and in its selection to honor the name of the founder of the genus. It is proper to remark here that the corallum of this form appears to have been entirely free, as Dr. Winchell states his typical examples to have been, since the limestone matrix is in immediate contact with the under surface. A small example of this coral in the collection is evidently a young corallum. It consists of two minute calyces and a larger one surrounded by ten or eleven others of nearly full size. This seems to indicate that the increase of the corallum was in all directions from the center; or that the natural tendency to increase was no greater in one direction than in another.

Dr. Peale found only a part of the full series of Carboniferous strata to be present at the locality from which these specimens of *Leptopora* were obtained, and the fossils were found near the base of that local series. He thinks the strata in question belong near the base of the Carboniferous series; but, aside from the presence of *Leptopora*, there is no paleontological evidence that they represent the Subcarboniferous group, as separable from the remainder of the great Carboniferous series. On the contrary, some of the associated forms have hitherto been found only in the Coal-measure strata of the Mississippi Valley. The fossils found associated with the *Leptopora* consist of a single example of *Retzia* (*Eumetria*) *uta* Marcou, a small plicated undetermined species of *Rhynchonella*, a broken stipe of *Glauconome*, like *G. nereidis* White, or *G. trilineata* Meek, and a few segments of crinoid stems.

In this instance there is a plain commingling of Subcarboniferous and Coal-measure types; and, so far as the paleontological evidence yet obtained is concerned, we are not justified in referring the strata from which the fossils were obtained to either group exclusively.

ECHINODERMATA.

Genus GRANATOCRINUS Troost.*

Granatocrinns lotoblastus White?

Among the fossils brought in by Prof. St. John from the Teton Range, near the headwaters of Teton River and just west of the common boundary of Idaho and Wyoming, is a single example of *Granatocrinus*, which

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* *Granatocrinus* Troost, although closely related to *Nucleocrinus* Conrad, is worthy of generic separation, as pointed out by Meek and Worthen, Illinois Geol. Reports, vol. ii, pp. 274 and 275

is nearly related to, if not identical with, *G. lotoblastus* White.* *G. lotoblastus* was discovered at Ewell's Spring, Arizona, associated with a species each of *Syringopora* and *Favosites*, which I identified (*loc. cit. inf.*) respectively as *S. harveyi* White and *F. divergens* White and Whitfield. The two last-named species occur in the Subcarboniferous strata at Burlington, Iowa, where the type-specimens were obtained. *Granatocrinus lotoblastus* is also recognized as closely related to *G. melo* Owen and Shumard, from the same locality and group. No serious doubt has been entertained of the Subcarboniferous age of those Arizona strata; but there is much reason to believe that the strata from which the *Granatocrinus* found by Prof. St. John was obtained belong higher in the great Carboniferous series. The fossils at present known to be associated with this Blastoid are a *Syringopora*, apparently identical with *S. harveyi* White; a *Spirifer*, which seems to be identical with *S. rockymontanus* Marcou; a *Rhynchonella*, related to both *R. metallica* White and *R. pustulosa* White; a *Hemipronites*, like *H. crenistria* Phillips; besides some fragments of *Fenestella* and a few segments of crinoid stems.

All these types except the Blastoid are common to both the Subcarboniferous and Coal-measure groups; but hitherto no Blastoid has been discovered in American strata above the Subcarboniferous. If the foregoing specific identificatious are correct, there is in this case also a commingling of Subcarboniferous and Coal-measure forms; but the paleontological evidence seems to be greater in favor of the Subcarboniferous than the Coal-measure age of the strata from which the fossils in question were obtained. This view is also supported by the fact that Prof. St. John obtained the fossils from the "earlier member of the Carbonifrous series" in that region. This earlier member no doubt represents, at least in part, the Subcarboniferous group of the Mississippi Valley; but, as has already been shown, the means of defining a distinct Subcarboniferous group in that far western region are yet wanting.

POLYZOA.

Genus ARCHIMEDES Lesueur.

Archimedes ——— ?

Among Dr. Peale's collections from Mount Darby, Wyoming Range, Western Wyoming, are several specimens of an undetermined species of *Archimedes* compactly imbedded in limestone. Their generic identification is unmistakable; but the condition of their preservation is such that the character and arrangement of the fenestrules and pores cannot be satisfactorily determined. The aspect and character of the axis are essentially like those of the two well-known species found in the Keokuk and Chester limestones respectively, of the Lower Carboniferous group of the Mississippi Valley; but none of these are sinistrally coiled, as some of those are. Judging from the stratigraphical position of these specimens in the Carboniferous series, and their wide geographical separation from other known examples of the genus, it is probable that they belong to an undescribed species; but the condition of the specimens will not allow of the determination of that question.

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* See Expl. and Sur. West of the 100th Merid. (Wheeler), vol. iv, part i, p. 80, pl. v, figs. 3 *a* and 3 *b*.

Probably no fossil form is more generally regarded as distinctively a Subcarboniferous type than *Archimedes;* but the examples in question, according to Dr. Peale's observations, seem to have come from strata higher in the series than might reasonably be referred to the Subcarboniferous group. Unfortunately, the only known associated fossils are some fragments of a *Hemipronites*, apparently *H. crenistria* Phillips sp., a Cyathophylloid coral, probably *Zaphrentis*, and a few crinoid segments. These give no definite indication as to the age of the strata, whether Subcarboniferous or Coal-measure, from which the fossils here noticed were obtained, because *H. crenistria* occurs in both Subcarboniferous and Coal-measure strata in the Mississippi Valley, and the other forms are also common to both groups.

Genus PTILODYCTIA Lonsdale.

Ptilodyctia triangulata White.

Certain forms from the Carboniferous rocks of Arizona are described in this paper, which, although closely related to certain others from the Mississippi Valley, are, nevertheless, regarded as sufficiently different to warrant the bestowal upon them of separate specific names. There are also other instances of similar—and even much closer—relationship between forms occurring in distantly-separated regions, which, together with the former, might be supposed to be due to causes connected with their geographical distribution and their respective regional environment. Such causes have doubtless produced much effect upon many species; but there are others which seem to have undergone little, if any, change, although exposed to all the influences to which the others have been subjected. Thus, the identity of many Carboniferous species, which occur in the eastern, middle, and western portions of North America, is unquestionable, not to mention the well-known identity of several European with American Carboniferous forms, even with some of those found in the Western Territories.

An example of the wide distribution of American Coal-measure forms is found in *Ptilodyctia angulata.* The type-specimens of this species were obtained from the Coal-measure strata at Danville, Ill., by Mr. William Gurley, and described by me in Proc. Acad. Nat. Sci. Philad. 1878, p. 35. The examples here noticed were obtained from about the middle of the Carboniferous series on Yampa Plateau, Northwestern Colorado. These examples show that the corallum is ramose, as it is was supposed to be when the original description was written, although that fact was not clearly shown by the type-specimens. The characteristics of the Colorado examples are in all respects like those of the type-specimens, except that they are more slender, their sides having a breadth of from 2 to 2½ millimeters, instead of from 3 to 5 millimeters, as in the type-specimens; but this is not thought to indicate even a varietal difference. The details being the same, the original description is repeated here with only slight change.

Corallum ramose, the branches comparatively few and not varying materially in size from the main stipe; transverse section triangular; all three sides poriferous; the edges moderately sharp and sometimes a little irregular; the laminar axis consisting of three divisions, which end respectively at the three edges and meet at the center of the corallum; pores well developed, but not arranged in the regular order that is common in this genus, nor are they bounded by any longitudinal or transverse lines or ridges. Their mouths are moderately prominent, slightly oval, the direction of the longer diameter of each being subject to no regularity.

This species differs from typical forms of *Ptilodyctia* in having three flat or concave sides, instead of two convex ones; in the axis being consequently tripartite; and in the irregular disposition of the pores upon the surface.

BRACHIOPODA.

Genus Retzia King.

Retzia woosteri (sp. nov.).

Shell of medium size, moderately gibbous, both valves being nearly equally convex; hinge short; ears scarcely prominent; ventral valve having a moderately broad, very shallow sinus, which is scarcely apparent at and near the umbonal region and produces merely a broad sinuosity in the front margin; longitudinal convexity of the valve regular, but greater between the middle and umbo than elsewhere; umbo prominent and arched. Dorsal valve considerably shorter than the ventral, regularly convex, showing only a slight if any elevation corresponding with the shallow sinus of the ventral valve. Surface marked by about 28 simple plications upon each valve, which extend from beak to base, being separated by grooves of about equal width with the plications. Six or seven of these plications occupy the shallow sinus of the ventral valve, and they occupy the whole surface except a small plain space on each side of the umbo of the ventral valve, and a still smaller adjacent space on each side of the umbo of the dorsal valve.

Length from ventral umbo to front margin, 20 millimeters; greatest width, which is in front of the middle, 18 millimeters; greatest thickness, both valves together, 10½ millimeters.

In general form and character of surface-markings this species is related to *R. uta* Marcou (=*R. punctilifera* Shumard); but, besides being a much larger and comparatively a less gibbous species, it bears nearly or quite double the number of plications upon each valve that is borne by *R. uta*.

Associated with it are *Spirifer rockymontanus* Marcou, *Spiriferina octoplicata* Sowerby, *Spirigera subtilita* Hall, *Hemipronites crenistria* Phillips, *Axophyllum rudis* White and St. John?, and an undetermined small Gasteropod. They were all collected by Prof. L. C. Wooster, who in a private communication says: "They were obtained from some pebbles in a conglomerate resting upon the eroded face of the granite, 32 miles west and 18 miles north of Greeley, Colorado. A portion of the pebbles of this conglomerate was evidently derived from the granite upon which it rests." He found no Carboniferous strata *in situ* in that region; but it is evident that the "pebbles" which contain the fossils here noticed had not been transported to any considerable distance from the place of their original deposition. They all belong to types which are common in Coal-measure strata, and most of them are well-known Coal-measure species.

CONCHIFERA.

Genus NUCULANA Link.

Nuculana obesa (sp. nov.).

Shell subovate in marginal outline, except that the dorsum is concave behind the beaks, moderately gibbous in front, but attenuated behind; basal margin regularly and broadly convex; front regularly rounded, the curvature of the margin only slightly lessening between the front and the beaks; postero-dorsal margin concave; the posterior portion of the shell narrow and the posterior margin subangular or sharply rounded from the postero-dorsal to the postero-basal margin; umbonal ridges sharply defined, and placed so high as to form angular lateral borders to the concave dorsum behind the beaks, the borders being more sharply defined near the beaks than posteriorly; beaks well defined, incurved, and pointing backward, their average distance from the front being somewhat more than two-fifths the full length of the shell, but this varies with the varying length of the posterior portion. Surface marked by fine, regular, raised concentric striæ, which are obsolete or less conspicuous on the postero-dorsal space between the umbonal ridges than elsewhere. Cardinal teeth about 12 on each side of the beak; cartilage-pit moderately large; interior markings unknown.

Length of the most perfect example in the collection, 30 millimeters; height from base to beaks, 18 millimeters; thickness, both valves together, 12 millimeters. Some less perfect examples indicate a greater size and a proportionally greater elongation posteriorly.

This species is closely related to the *Leda bellistriata* of Stevens; but, besides being a larger and more robust form, it differs conspicuously in its laterally flattened and longitudinally strongly concave postero-dorsal area. There can be no reasonable doubt that this form is genetically related to *N. bellistriata* Stevens sp.; but the differences here pointed out are evidently constant, and therefore deserve recognition, and the most convenient form of expressing such recognition is thought to be the application of a separate specific name.

This, together with the five following Carboniferous forms, was obtained by Mr. G. K. Gilbert from "Wild Band Pockets, Northern Arizona, 15 miles south of Pipe Spring." The strata from which these fossils came are the uppermost of the Carboniferous series exposed at that locality; and Mr. Gilbert thinks that, although they belong near the top of the full Carboniferous series, there are in that region some strata which belong above them in that series.

Genus NUCULA Lamarck.

Nucula perumbonata (sp. nov.).

Shell small, compact, ventricose; posterior end obliquely truncated from the beaks to the postero-basal border, its plane forming an acute angle with that border; basal border broadly convex; front abruptly rounded; umbones large, much elevated; beaks situated about mid-length of the shell, incurved, pointing a little downward and backward; umbonal ridges forming a right and left angular border to the broad concave posterior or postero-dorsal space. Surface marked by fine raised concentric lines.

Length, 9 millimeters; height, from base to umbo, 6½ millimeters; thickness, both valves together, 6½ millimeters.

The collections obtained by Mr. Gilbert contain only a single specimen of this species; but it is so nearly perfect, and its characteristics are so well marked and so different from those of any known forms, that I venture to give it a new specific name. In some of its characteristics this shell resembles the young of the *Nuculana* just described, judging from the course of the concentric lines upon the umbones of that shell, but it is not prolonged posteriorly like *Nuculana*, even in its young state; besides which the shell in question is much more ventricose than the young of that species could have been. It differs from other known Carboniferous species of *Nucula* in the subcentral position of its beaks, its large prominent umbones, and the broad concave space between its umbonal ridges.

Position and locality.—Carboniferous strata, associated with the preceding and four following species at Wild Band Pockets, Northern Arizona, 15 miles south of Pipe Spring.

Genus ALLORISMA King.

Allorisma? gilberti (sp. nov.).

Shell rather small, elongate, broadly reflexed when adult, but less so when young; posterior portion compressed and apparently slightly gaping; valves broadly convex except posteriorly, where they are flattened or compressed, nowhere gibbous; antero-dorsal portion of the shell obliquely truncated downward and forward, directly from the beaks to the front; front rounded with a regular curve to the base; basal margin broadly convex; posterior margin short, abruptly truncated downward and backward, forming a distinct, slightly obtuse angle with the dorsal margin; the latter margin broadly concave from the beaks to posterior margin; beaks small, placed near the anterior end of the shell, slightly elevated and turned a little forward. Surface marked by concentric lines and wrinkles of growth. Extending from behind the beaks to the narrow posterior end of the shell, there are upon each valve two narrow obscure folds, which increase in width posteriorly, with a narrow shallow sinus between them. The lower one of these folds is the broader, and ends at the postero-basal angle; and the upper, which is involved with the inflexed dorsal border, ends at the postero-dorsal angle.

Length, 29 millimeters; height, from base to beaks, 12 millimeters; thickness, both valves together, 7½ millimeters.

This shell departs widely in aspect and form from the typical forms of *Allorisma*, and it perhaps does not strictly belong to that genus, although it corresponds in all essential respects with the generic diagnosis given by its author. It is evidently congeneric with the species described by Meek in the Final Report on the Geology of Nebraska, p. 217, pl. x, fig. 15, under the name of *Allorisma* (*Sedgwickia*) *reflexa*. That species is from the Upper Coal-measures at Nebraska City, and has also been found in the Lower Coal-measures of Illinois, as stated by Meek. Compared with that shell, ours is much more elongated, and the beaks are placed proportionally nearer the front.

Position and locality.—Carboniferous strata, associated with the two preceding and three following species at Wild Band Pockets, Arizona, 15 miles south of Pipe Spring. Collected by Mr. G. K. Gilbert, in whose honor the specific name is given.

GASTEROPODA.

Genus BELLEROPHON Montfort.

Bellerophon subpapillosus White.

Among the other fossils herein noticed which Mr. Gilbert obtained from Wild Band Pockets, Arizona, are some imperfect specimens of a *Bellerophon* which is closely related to *B. urii* Fleming and *B. carbonarius* Cox. In Powell's Report on the Geology of the Uinta Mountains, p. 92, I gave a brief description of this form under the name *B. carbonarius* var. *subpapillosus*, the specimens having been obtained from near the top of the Carboniferous series at different localities in Northwestern Colorado. In view of the constancy of the characteristics by which it differs from *B. carbonarius*, I now prefer to treat it as a distinct species, although I have no doubt of its genetic relation to that species. It is about double the size of *B. carbonarius*. This characteristic would be of little value in a single instance, but it is constant in all cases and in all localities. *B. carbonarius* is also constant in its smaller size, throughout its wide distribution in the great Mississippi Valley, and its great vertical range in the Coal-measures there. The other characteristics which distinguish the two species are also constant in their range and distribution respectively. The more conspicuous one of these characteristics, as regards *B. subpapillosus*, consists in the studding of the surface of the outer part of the last volution, which is plain in *B. carbonarius*, with slightly raised papillæ, which are arranged in rows, corresponding to and continuous with the revolving striæ.

B. subpapillosus is characteristic of the upper strata of the Carboniferous series in Northwestern Colorado and the adjacent region; and its presence among the collections from Northern Arizona seems to indicate a similar horizon for the strata from which the latter were obtained.

Genus MURCHISONIA D'Archiac.

Murchisonia terebra (sp. nov.).

Shell slender; apical angle 16° or 17°; full number of volutions in adult examples not less than seventeen or eighteen; volutions strongly angulated, with only one angle, which is slightly carinated and finely nodulated, and situated much nearer to the proximal than the distal border of the volution; outer side of the volution, between the distal border and the carinated angle, straight, and slightly concave between that angle and the proximal border; suture slightly impressed, moderately distinct. The whole outer surface of the volutions on both sides of the angle marked by fine revolving raised lines of nearly uniform size.

This species differs conspicuously from any published form of the genus in possessing the single prominent angle situated near the proximal border of the volution, and the broad flattened outer side of the volution between the angle and its distal border. It is perhaps more nearly related to *M. marcouiana* Geinitz, from the Upper Coal-measures of Eastern Nebraska, than any other known form; but it differs from that species in the character and position of the prominent revolving angle, in having a much greater apical angle, and in wanting the numerous uniform revolving raised lines which mark the whole outer surface of *M. terebra*.

The full length of the largest example in the collection would be, if perfect, not less than 45 millimeters.

Position and locality—Associated with the preceding in Carboniferous strata at Wild Band Pockets, Northern Arizona.

Genus PLEUROTOMARIA Defrance.

Pleurotomaria grayvillensis Norwood & Pratten.

A couple of imperfect examples of a small *Pleurotomaria*, brought by Mr. Gilbert from Wild Band Pockets, Northern Arizona, with the four preceding species, correspond too nearly with the description and figures of *P. grayvillensis*, as given by Norwood and Pratten, to warrant their separation under a new specific name. The principal differences presented by these examples are the greater prominence of the band-bearing carina, the more distinct furrow separating it from the proximal portion of the volution, and the greater prominence of the revolving lines which cover the surface.

CRETACEOUS FORMS.

Among some fossils sent for examination to the office of the Survey by Mr. Arthur Lakes, who collected them from the Cretaceous strata on Fossil Creek, sixteen miles west of Greeley and six miles south of Fort Collins, Colorado, are specimens of two corals which have to a remarkable degree a Paleozoic facies. Mr. Lakes's known familiarity with the geology of that region would of itself incline me to refrain from questioning the correctness of his reference of these fossils to Cretaceous strata, notwithstanding their Paleozoic facies; but fortunately he has made such questioning impossible by sending pieces of rock in which both the corals and well-known species of Cretaceous shells were imbedded together. Besides this, I have myself visited that locality, and recognize the strata there as belonging to the lower portion of the Fox Hills Group of the Cretaceous series, as that group is developed in Colorado, and doubtless equivalent with a portion of the Fort Pierre Group, or Cretaceous No. 4 of the Upper Missouri River region.

Corals are exceedingly rare in any of the Cretaceous rocks of Western North America, and therefore the discovery of any coralline form is of more than ordinary interest; but the interest concerning these two forms is greatly increased by their apparent Paleozoic affinities. Being imbedded in sandstone, the condition of their preservation is not such as to give entirely satisfactory results from their study. I have therefore referred them provisionally to Paleozoic genera, because in their visible characteristics they correspond more nearly with those genera than with any others known to me.

Professor H. Alleyne Nicholson, of the University of St. Andrews, Scotland, whose labors in the fossil Actinozoa and Polyzoa are well known, has kindly examined specimens of both these forms at my solicitation, and to him I am indebted for valuable notes concerning them.

ACTINOZOA.

Genus CHÆTETES Fischer.

Chætetes ? ? dimissus (sp. nov.).

Corallum ramose, dichotomously branching at irregular intervals; branches cylindrical or subcylindrical, solid, the successive branches diminishing in size. Corallites rather small, closely compacted, diverging from the center, with a slight upward curve, to the surface, and forming an acute angle with the axis. Character of the surface unknown, the specimens being firmly imbedded in sandstone. One corallum seems to have consisted of a central or basal mass, from which several stems diverged irregularly, each stem bearing several branches.

While this coral has all the outward appearance and apparent general structure of *Chætetes*, the corallites seem to be entirely destitute of *tabulæ*, even when viewed in the microscopic section prepared by Professor Nicholson. If the *tabulæ* are really absent, as they appear to be, this coral cannot be properly referred to *Chætetes*, nor to any other form of the Actinozoa, and it probably belongs to the Polyzoa. If it belongs to the latter class, I do not know any genus to which it can be referred; and as the specimens are not sufficiently perfect to warrant a new generic diagnosis, I assign them provisionally to *Chætetes*.

Genus BEAUMONTIA Edwards & Haime.

Beaumontia? solitaria (sp. nov.).

Corallum massive, compact; corallites prismatic, readily cleaving from each other, unequal in size and in the shape of the transverse section, some of them being more than twice as large as others, and the longer diameter of some being more than double the short diameter, the average diameter being less than one millimeter; their walls thin, apparently marked only by the ordinary lines of growth; tabulæ numerous, plain, variously, but always slightly, flexed.

This coral much resembles *Favosites;* but no traces of mural pores have been detected, not even in the microscopic section prepared by Professor Nicholson. In consequence of this, and of the irregular or flexed character of the tabulæ, I refer it to *Beaumontia*. Apparently the only known fact that would throw doubt on the correctness of such a reference is that *Beaumontia* has hitherto been known only in Paleozoic rocks.

Art. XV.—The so-called Two-Ocean Pass. (Plates III, IV.)

By F. V. Hayden.

This somewhat singular geographical feature has never yet been clearly explained, though it is noted on some of our maps as far back as 1851. It was known to the old trappers of a still earlier period, and they had a tradition of its existence. So far as I can ascertain, the first published notice of it is found in Capt. W. F. Raynolds's Report of the Exploration of the Yellowstone in 1868, page 11. Captain R. writes as follows:

"Bridger also insisted that immediately west of the point at which we made our final effort to penetrate this singular valley (Yellowstone) there is a stream of considerable size which divides and flows down either side of the water shed, thus discharging its waters into both the Atlantic and Pacific Oceans. Having seen this phenomenon on a small scale in the highlands of Maine, where a rivulet discharges a portion of its waters into the Atlantic and the remainder into the St. Lawrence, I am prepared to concede that Bridger's 'Two Ocean river' *may* be a verity."

Again, Captain Jones, of the United States Engineers, in his report of a Reconnaissance of Northwestern Wyoming, gives a brief description of this pass, which attracted some attention at the time:

"At this divide occurs a phenomenon, probably the one referred to by the early trappers as the 'Two Ocean Pass.' Marching at the head of the column where the trail approached the summit, I noticed that the riband of meadow, in which the stream lay we had been following, suddenly dropped away in front of us with a contrary slope. I could still see the stream threading it, and for a moment could scarcely believe my eyes. It seemed as if the stream was running up over this divide and down into the Yellowstone behind us. A hasty examination in the face of the driving storm revealed a phenomenon less startling perhaps, but still of remarkable interest. A small stream coming down from the mountains to our left I found separating its waters in the meadow where we stood, sending one portion into the stream ahead of us, and the other into the one behind us—the one following its destiny through the Snake and Columbia Rivers back to its home in the Pacific; the other, through the Yellowstone and Missouri, seeking the foreign water of the Atlantic by one of the longest voyages known to running water. On the Snake

River side of the divide the stream becomes comparatively large at once, being fed by many springs and a great deal of marsh." In figure 3, plate III, I give a copy of Captain Jones's map of this locality.

During the past season, the writer, on his return from the Yellowstone Park, passed over this divide, and made a somewhat careful study of it. The chart, which was sketched on the spot by Mr. W. H. Jackson, shows the exact character of the drainage.

This pass is located about longitude 110° 00′ and latitude 44° 05′. Atlantic Creek is a branch of the Upper Yellowstone River. The party with which the writer was connected passed up the east side of the Yellowstone Lake to the mouth of the Upper Yellowstone River, and thence up the valley of that stream about thirty miles to what may be called the Three Forks, near Bridger's Lake. The east fork bears the name of Atlantic Creek. From the Three Forks the party passed up the valley of Atlantic Creek to the southwest, for the most part over a grassy valley, which was enclosed between vertical walls of volcanic breccia 1,000 to 1,200 feet in height. This valley is purely one of erosion. The breccia itself is of very modern age, probably of Quaternary date, and the wearing-out of this great groove must have been an exceedingly modern event. So far as can be seen from the summit of the mountains on either side, no divide can be observed. The erosion seems to have produced a gentle slope on either side of the watershed. At the summit, not over ten miles from the junction of the Atlantic Creek with the Upper Yellowstone, the elevation, 8,081 feet, is not more than 150 feet above the valley of the main stream. The valley is at first quite narrow; but it gradually expands into an open, grassy meadow, which, near the pass, becomes one-third of a mile in width, and gradually closes up again into a cañon on the Pacific slope. So obscure is the drainage that we camped the night of October 3, 1878, within a fourth of a mile of the water-divide, but did not perceive it until we commenced our march the following morning.

The conditions are as follows: The summit of the pass for a distance of about half a mile is so nearly level that a marsh is formed, which, in times of high water, becomes a small lake. A portion of the waters from the surrounding mountains accumulates in the marshy meadows, and gradually gravitates from either side into two small streams, one of which flows to the northeast, the other toward the southwest. On the east side of the divide there is a depression or gorge in the mountain, which is occupied by a small stream that at the time of our visit flowed in a well marked channel toward the northeast into Atlantic Creek. This is the well-known Two-Ocean Creek. At the base of the mountain-side (*c*), a small stream rises from a sink-hole, or spring, which at the time the writer saw it (October 4) was nearly dry, and but little water was running in Two-Ocean Creek (*a*). This spring-hole was not separated from the latter creek more than six feet, and a small dry channel connecting it with *a* showed that in times of high water a portion of the water that started down the mountain-channel (*a*) broke over the side into the spring-hole (*c*), and flowed thence through channel *c* to the Pacific. Lower down in the Two-Ocean channel are two places, shown by dotted lines, where there are two old channels connecting in time of high water with channel *c*, showing that a portion of the waters that started down the mountain-side for the Atlantic was diverted toward the Pacific. On the opposite side of the pass there is a similar depression in the breccia wall, down which, at the time of the melting of the winter's snows, much water flows.

The points *b* and *d* are close together, and the waters of the grassy meadows, which lie between them, probably separate, a part taking one direction and a part the other. The little lake or marsh in the center, of course, furnishes a supply or reservoir for both. Although the simple separation of water on a divide is not an uncommon occurrence, yet the conditions observed in this case are rarely repeated, and have not before come under the writer's observation. Small lakes upon the summit of a water-divide, with drainage from either side, are not uncommon from the north line of the United States to Mexico. On the divide between the Yellowstone and Snake River drainage, we often find small lakes or reservoirs of water which in the wet season send small portions to the Atlantic and to the Pacific.

The following are examples of peculiar forms of drainage, which bear some relation to that of the "Two-Ocean Pass":

Figure 1 was observed by Mr. A. D. Wilson, of the Survey, in British Columbia, between Fort Douglass and Lillooet. From *b* to *c* via *a* is about 100 miles' travel. The lake at *a* lies on the summit of a mountain, and is fed principally by springs; its water runs either way through other lakes 25 or 30 miles long, and finally flows into Frazer River at *b* and *c*.

In Fig. 2 is given a sketch of a case where a small mountain stream divides and runs in two channels to the main creek. It occurs in the Wind River Mountains, near the source of the Popo Agie Creek, a branch of Wind River. The small stream enters a depression at *a*, from which its waters find their way out, partly to the right and partly to the left of the rocky hill *d*, and empty into the main stream at *b* and *c*.

Not far from this locality is another example similar to the above, in which a mountain torrent descends against the upper end of a great slide of rock, and is broken into two nearly equal parts, and so descends to the main creek.

Fig. 1.

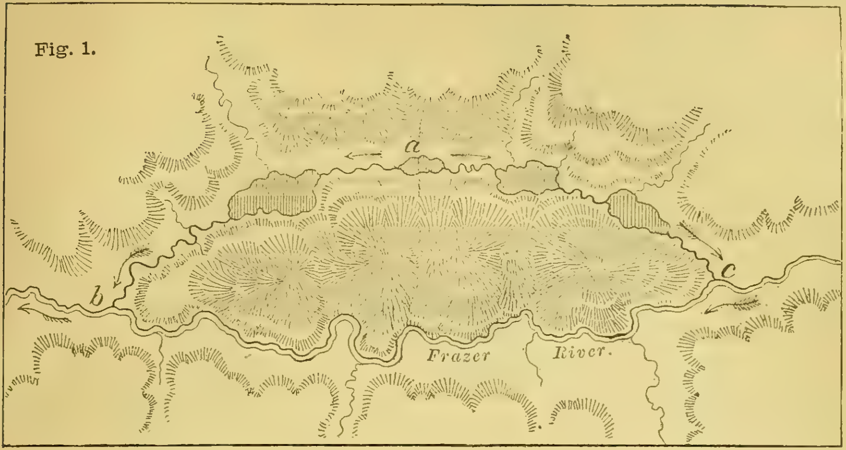


Fig. 2.

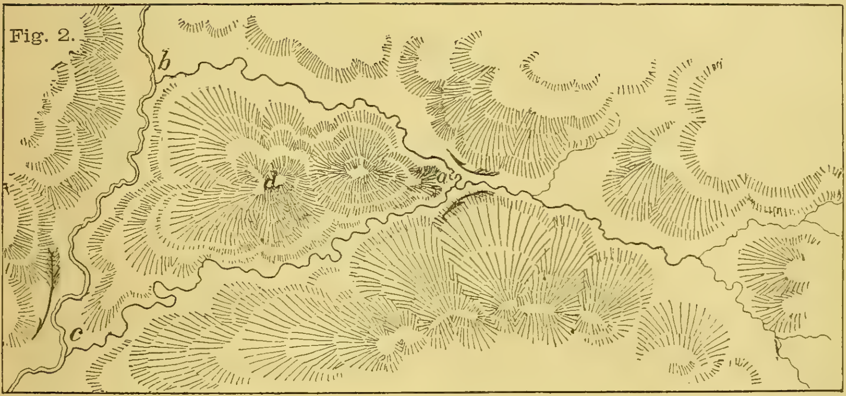
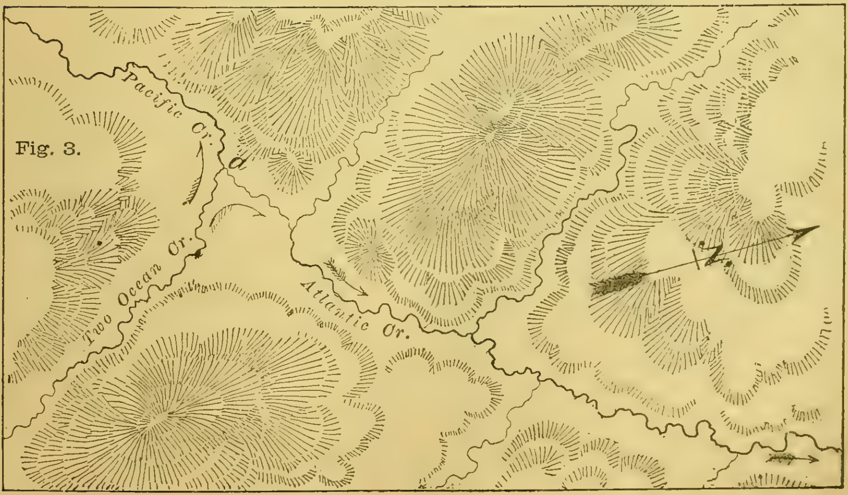
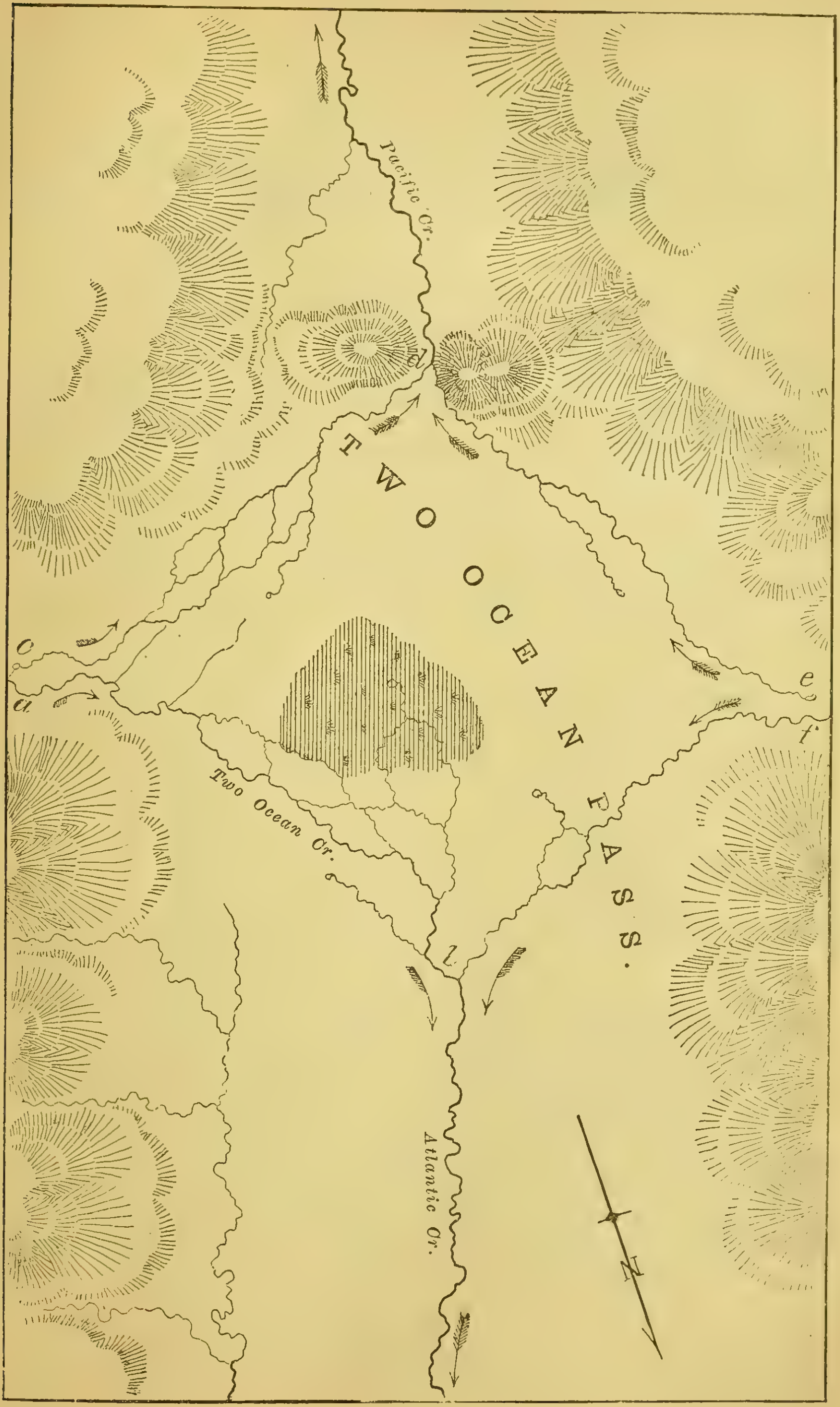


Fig. 3.




Pacific Cr.
d
TWO OCEAN PASS.
c
a
e
f
Two Ocean Cr.
l
Atlantic Cr.
N

Art. XVI.—On the Extinct Species of Rhinoceridæ of North America and their Allies.[*]

By E. D. Cope.

Twelve species of mammals which may be called rhinoceroses, have been defined from materials obtained from the Tertiary formations of North America; and five additional species have been distinguished, which may be regarded as more or less nearly allied to that family. A few additional names have been proposed for supposed species whose characters are not yet established. In the corresponding formations of Europe and Asia, the fossil remains indicate a still larger number of species. The forms here included first appear in both continents in the Lowest Miocene or Oligocene epochs; that is, in North America in the White River formation.

The proper definition of the family *Rhinoceridæ* is not yet perhaps attainable, owing to our ignorance of the structure of some of the earlier forms. The description given by Huxley[†] is evidently not designed to be a family diagnosis, as various generic and other characters are introduced. Perhaps the dental formula at the head of his article may be regarded as such, from the context. It is I. $\frac{1-1}{1-1}$ or $\frac{0-0}{0-0}$; C. $\frac{0-0}{0-0}$; Pm. $\frac{4-4}{4-4}$; M. $\frac{3-3}{3-3}$. Of this it may be remarked that the superior incisors are sometimes $2-2$; the canines are frequently $\frac{0-0}{1-1}$; and the premolars are often $\frac{3-3}{3-3}$. A little later,[‡] Professor Gill offered a special diagnosis, as follows:

"*aa.* Neck abbreviated. Incisor teeth (attypically reduced in number or entirely suppressed. (*Rhinocerotoidea Rhinocerotiformia.*)

"Skull with the basioccipital comparatively well developed behind and narrowed forwards (with tympanic and periotic bones anchylosed and wedged in between the squamosal, exoccipital etc., Huxley), with the nasal bones produced forwards and more or less arched and meeting an upward development of the supramaxillary bones. Upper molars with a deep valley extending obliquely inwards from the median portion of the inner wall, and (P. M. 4, M. 1 – 2) a shallow one extending from the posterior wall. Lower molars (P. M. 2, M. 3) with two curved transverse crests."

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[*] Read before the National Academy of Sciences, April, 1879.

[†] The Anatomy of Vertebrated Animals, p. 307, 1872.

[‡] Arrangement of the Families of Mammals: Smithsonian Misc. Pub. Nov. 1872, p. 85.

Of these characters, it may be remarked, that those derived from the molar teeth must be included in a diagnosis of this family, because they belong to it, although they do not distinguish it from the tapiroid groups; the one character of the superior molars (see my diagnosis below) which defines the family, being omitted by Professor Gill. Of those derived from the cranium, the form of the nasal bones is specific or generic, and that of the basioccipital, one of proportion only. The statement as to the periotic bones does not express the peculiar character of the family, but describes the condition usual in the order. The union of the maxillary and nasal bones is also found in the tapirs. The reduction of the superior incisor teeth is a significant character, and the length of the neck may be so also. Under these circumstances, I will endeavor to offer a definition free from the above objections in the present state of our knowledge. At the same time I propose to make the genus *Hyracodon* the type of a distinct family, as I have found its characters to be much more distinct from those of the *Rhinoceridæ* than has been supposed. I introduce these families by distinguishing them in an analytical table from those of several other families of Perissodactyles, mostly extinct.

I. The external crescentoid crests of the superior molars subequal; inferior molars with crescents.
  1. Inner part of crown of superior molars supporting tubercles.... *Chalicotheriidæ.*
  2. Inner part of crown of superior molars supporting cross-crests... *Palæotheriidæ.*
II. Exterior crescentoid crests of superior molars subequal; inferior molars with cross-crests.
  3. Superior molars and premolars alike and with cross-crests .... *Tapiridæ.*
III. Anterior exterior crescent of superior molars shortened; inferior molars with cross-crests; premolars different from molars.
  4. Superior molars with cross-crests; a diastema .... *Lophiodontidæ.*
  5. Molars as above; no diastema .... *Tapirulidæ.*
IV. Anterior exterior crescent of superior molars much reduced; inferior molars with cross-crests; superior molars and premolars alike, with cross-crests.
  6. Mastoid bone forming part of the external wall of the skull; no postcotyloid tuberosity of the mandible; neck elongate .... *Hyracodontidæ.*
  7. Mastoid bone excluded from the walls of the skull by the contact of the occipital and squamosal; a postcotyloid tuberosity of the mandible; neck short .... *Rhinoceridæ.*

The genera of *Chalicotheriidæ* are as follows: Eocene: *Limnohyus* Leidy; *Palæosyops* Leidy; *Leurocephalus* S. L. & S. Oligocene: *Menodus* Pom.; *Symborodon* Cope; *Dæodon* Cope. Miocene: *Chalicotherium* Kaup; *Nestoritherium* Kaup.

The genera of *Palæotheriidæ* are, *Palæotherium* Cuv., *Propalæotherium* Gerv., *Paloplotherium* Ow., and perhaps some others.

The *Tapiridæ* include *Tapirus* L., Miocene to recent; Miocene, *Listriodon* Meyer, *Tapiravus* Marsh, *Anchisodon* Cope.

The *Lophiodontidæ* embrace: Eocene forms, *Lophiodon* Cuv., *Pachynolophus* Pom., *Hyrachyus* Leidy, *Colonoceras* Marsh.

The only genus of *Tapirulidæ* is the Eocene *Tapirulus* Gervais.

The genera of the *Rhinoceridæ* differ as follows:

I. Four anterior digits.
  Incisors $\frac{2}{1}$; canine $\frac{0}{1}$; no horn; posttympanic bone distinct .... *Aceratherium.*
II. Three anterior digits.
  Incisors $\frac{?\,2-1}{1}$; canines $\frac{0}{1}$; no horn; posttympanic bone distinct .... *Aphelops.*
  Incisors $\frac{1}{1}$; canines $\frac{0}{1}$; a dermal horn; posttympanic distinct .... *Ceratorhinus.*
  Incisors $\frac{3}{2}$; canines $\frac{0}{1}$; a dermal horn; posttympanic ? .... *Zalabis.*
  Incisors $\frac{1}{1}$; canine $\frac{0}{1}$; a dermal horn; posttympanic process coössified with postglenoid process; no nareal septum .... *Rhinocerus.*
  Incisors $\frac{0}{0}$; canines $\frac{0}{0}$; a dermal horn; posttympanic process not united with postglenoid; no nareal osseous septum .... *Atelodus.*
  Incisors $\frac{0}{0}$; canines $\frac{0}{0}$; a dermal horn; posttympanic coösified with postglenoid; an osseous septum narium .... *Cœlodonta.*

The species of these genera are the following; the names of the existing species are in Roman letters, the extinct ones in italics:

Aceratherium Kaup.
  A. incisivum Cuv. Middle Miocene. Europe.
  A. gannatense Duv. Middle Miocene. Europe.
  A. lemanense. Middle Miocene. Europe.
  A. mite Cope. Lower Miocene. North America.
  A. occidentale Leidy. Lower Miocene. North America.
  A. pacificum Leidy. Middle Miocene. North America.
  A. truquianum Cope. Middle Miocene. North America.
Aphelops Cope.
  A. meridianus Leidy. Upper Miocene. North America.
  A. megalodus Cope. Upper Miocene. North America.
  A. fossiger Cope. Upper Miocene. North America.
  A. malacorhinus Cope. Upper Miocene. North America.
Ceratorhinus Gray.
  C. sumatranus Cuv. Recent. Sumatra.
  C. lasiotis Sclater. Recent. Malacca.
  C. schleiermacheri Kaup. Middle Miocene. Europe.
  C. aurelianensis Gaudry. Upper Miocene. Europe.
Zalabis Cope, gen. nov.
  Z. sivalensis C. F. Upper Miocene. India.
Rhinocerus Linn.
  R. unicornis L. Recent. India.
  R. sondaicus Cuv. Recent. Java.
  R. palæindicus C. F. Upper Miocene. India.
  R. platyrhinus C. F. Upper Miocene. India.
Atelodus Pomel.
  A. bicornis Linn. Recent. Africa.
  A. simus Burch. Recent. Africa.
  A. pachygnathus Wagn. Upper Miocene. Europe.
  A. leptorhinus Cuv. Pliocene. Europe.

CŒLODONTA Bronn.

C. etruscus Falconer. Pliocene. Europe.
C. hemitœchus Falc. Postpliocene. Europe.
C. antiquitatis Blum. Postpliocene. Siberia; Europe.

The above list embraces twenty-seven species, of which six are living. There are probably several other distinct fossil species; but their characters have not yet been sufficiently made known to enable me to refer them to their proper places. It will be observed, from the preceding catalogue, that eight species have been found in North American formations, ten in European, and three in those of Hindostan. It appears also that no extinct species of the true genus of *Rhinocerus* has yet been found in North America or Europe, and that no extinct rhinoceros of North America which is known, possessed a median dermal horn.

It can readily be seen that the genera above defined form a graduated series, the steps of which are measured principally by successive modifications of four different parts of the skeleton. These are, first, the reduction of the number of the toes of the anterior foot; second, the reduction in the number and development of the canine and incisor teeth; third, the degree of closure of the meatus auditorius externus below; and, fourth, in the development of the dermal horns of the nose and its supports. While these characters have that tangible and measurable quantity which renders them available for generic diagnosis, there are others which possess a similar significance, and which I now notice, so far as they are observable in the extinct species of North America.

I premise by observing that the *Aceratheria* of this continent have only been found in the eastern and western divisions of the White River formation, while the species of *Aphelops* are confined, so far as is known, to the Upper Miocene or Loup River formation.

The posttympanic process is, it is well known, well separated from the postglenoid process in the tapir, so as to leave the auditory meatus widely open below. The arrangement is similar in *Hyracodon*. In *Rhinocerus*, as shown by Flower, the meatus is closed below by the coösification of the two processes. In the oldest genus of the family *Aceratherium*, the relations of the parts are as in *Hyracodon*. In *Aphelops* the two processes approach each other, but do not come in close contact as in the genus *Ceratorhinus*.

The postglenoid process is low and transverse in the tapirs; in *Rhinocerus* it is long and has a triangular section. In some species of American *Aceratheria* its form is much like that of the tapirs (*A. mite*, *A. occidentale*); while in others (*A. pacificum*) and in the species of *Aphelops* the form of this process is as in *Rhinocerus*.

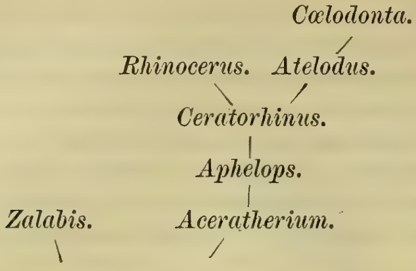
In the tapirs, the foramina sphenoörbitale and rotundum are distinct. They are also distinct in *Aceratherium mite*. In *A. pacificum* they are confluent, but the walls of their orifice present two opposite projections, which are the rudiments of a dividing septum. In *Aphelops* these foramina are one, as in *Rhinocerus*. At the same time, the external wall of the alisphenoid canal is shorter and thinner in the *Aceratheria* than in the *Aphelopes*.

In the older types of *Perissodactyla*, e. g. *Symborodon*, the foramen ovale is situated well in advance of the foramen lacerum medius, and is separated from it by a considerable space of the sphenoid bone. The same structure is seen in *Hyracodon* and in *Aceratherium*. In *Aphelops*, the foramen ovale approaches near to the f. lacerum, so as to be separated by a narrow bridge only in *A. megalodus*, which is wanting on one side in a specimen of *A. malacorhinus*. In the genus *Rhinocerus*, these foramina are not divided.

In the structure of the teeth, the same serial order is to be observed. Commencing with the incisors $\frac{3}{3}$ in the tapiroid types and *Hyracodon*, and canine $\frac{1}{1}$, we find $\frac{3}{2}$ $\frac{0}{1}$ in *Zalabis;* $\frac{2}{1}$ $\frac{0}{1}$ in *Aceratherium;* $\frac{2-1}{1}$ $\frac{0}{1}$ in *Aphelops;* $\frac{1}{1}$ $\frac{0}{1}$ in *Ceratorhinus* and *Rhinocerus*, to $\frac{0}{0-1}$ $\frac{0}{0}$ in *Atelodus* and *Cœlodonta*. As to the molars, in those of the upper jaw the series of modifications consists of successive complication of the transverse crests. In *Hyracodon*, as in the tapiroid genera, the external wall of the posterior molar is continued beyond the posterior cross-crest; in the *Rhinoceridæ*, generally the external wall is not continued beyond this crest, but is in line with the posterior cross-crest. In a specimen of *Aceratherium occidentale*, the posterior superior molar of one side is like that of *Hyracodon*, while that of the other side is like that of *Rhinocerus*. The cross-crests in *Aceratherium* are quite simple, having slight bulges into the median valley. In the species of *Aphelops* these bulges are more prominent, especially that of the posterior crest, which is more externally situated than that of the anterior cross-crest, so that the fundus of the valley is turned abruptly backwards. In several of the existing species, this bulge becomes an antero-posterior crest, and the fundus is further divided by other crests from the outer wall and elsewhere. The cingula become so elevated as to cause an isolation of the valleys as fossæ at a comparatively early stage of wear. This state of things commences in the extinct species of Kansas, the *Aphelops fossiger*.

In the bones of the skeleton, modifications accompanying those of the cranium and dentition may be observed. The femur of the species of the earlier formations may be readily distinguished from that of those of the later Tertiaries by the forms of both the extremities. In the *Aceratheria* this bone resembles that of the tapirs in the form of the great trochanter. This process is produced at its external border, has a recurved apex, and encloses a deep trochanteric fossa. In *Aphelops* it is precisely as in *Rhinocerus*, obliquely truncate externally, without prominent apex or well marked fossa. In the *Aceratheria* the inner crest of the rotular groove is but moderately prominent; in *Aphelops* and *Rhinocerus* it is greatly developed.

The succession of development of the line of the *Rhinoceridæ* is now not difficult to trace, and I give the following diagram in explanation of it.



It is evident that the descent diverged at a comparatively late period of geological time into two lines, which are represented at the present day by the African and Indian species respectively. The earliest species of the toothless or African series is the *Atelodus pachygnathus* of Wagner, whose characters have been so well worked out by Gaudry in his great work on the Fossil Fauna of Attica. That species sometimes presents a single small incisor or canine tooth in the mandible. From what has preceded it is also apparent that the generally most specialized type of rhinoceros, the genus *Cœlodonta*, has become entirely extinct. Its species yet known, were confined to Europe and Northern Asia, and the most formidable of them extended its range with the hairy mammoth within the Arctic circle. The *Cœlodonta antiquitatis* was evidently the most effectively armed of the family, as it had two horns, which, judging from the character of the surface of the skull to which they were attached, must have been of unusual size. To provide further against the shocks incident to their use in combat, the nareal septum was ossified, thus becoming a solid support to the nasal bones, etc., on which they stood.

It remains to look backwards, and to discover, if possible, the probable origin of the family in that of its earliest known genus, *Aceratherium*. A late survivor of this ancestral type is seen in the genus *Zalabis* Cope, of which one species, the *Z. sivalensis*, has been discovered by Cautley and Falconer in the late Tertiary of Hindostan. In this form, according to Falconer, there are $\frac{3}{2}$ incisors and $\frac{0}{1}$ canines. The early type, which corresponds most nearly with this genus, and which preceded the *Aceratheria* in time, is the genus *Amynodon* Marsh, which has left a species in the Uinta or Upper Eocene of Utah. Here the incisors are $\frac{2}{2}$ and the canines $\frac{1}{1}$. This formula is intermediate between that of *Aceratherium* and that of the Eocene tapirs, where the normal numbers $\frac{3}{3}$ $\frac{1}{1}$ prevail. According to Marsh, *Amynodon* further differs in the primitive condition of the premolars above, which, as in the *Lophiodontidæ*, differ from the molars in their greater simplicity. Thus it is probable that tapiroid animals, probably *Lophiodontidæ*, gave origin to the *Rhinoceridæ*, as Marsh has suggested. And it is further altogether probable that the general type of dentition presented by the *Rhinoceridæ*, *Lophiodontidæ*, etc., which I have named the palæotheriodont, took its origin from the type which is intermediate between it and the bunodont, viz, the symborodont, as I have pointed out in an essay on this subject.*

The first appearance of dermal horns was apparently in a pair placed transversely on the nasal bones, in species of Eocene *Lophiodontidæ* of the genus *Colonoceras.* The same character has been observed by Marsh in species of the Lower Miocene, which probably belong to the true *Rhinoceridæ*, and which he has called *Diceratherium.* This genus appears to have terminated the line exhibiting this structure, and the family in North America remained without horn. As we have seen, the types possessing the median horn arose in Europe, in the *Ceratorhinus schleiermacheri* of the Middle Miocene, and still survives.

It may be observed in conclusion that a successive increase of size in the species of this line has taken place in North America with the advance of geologic time. Thus, their probable ancestors of the genus *Hyrachyus* were the least of all. The *Aceratheria* of the White River formation were larger; the oldest, *A mite*, being the smallest; and the later *A truquianum* of Oregon, being the largest. The species of the Loup River or Upper Miocene formation were all larger, and were nearly equal to the large existing species.

The characters of the American genera and their allies, *Hyracodon* and *Anchisodon*, are pointed out in the following pages.

ANCHISODON Cope.

American Naturalist, 1879, 270, April; published March 26, 1879.

This genus is represented by maxillary teeth only, so that the characters of the incisor teeth and inferior molars are unknown. There are four premolars and three true molars. The true molars are constructed much as in *Lophiodon.* They have two external confluent crescents, each of which gives origin at its anterior part to a transverse crest, which is directed more or less obliquely backwards. The anterior part of the anterior external crescent is well developed, and not shortened as in *Acetherium* and *Rhinocerus*, and terminates in a low cusp. The external wall of the last true molar is continued posterior to the posterior transverse crest as in tapiroid types. The third and fourth premolars resemble the true molars. The second premolar differs from the others in a relatively greater elongation of the external portion, which presents three cusps instead of two. Of these one is opposite to the origin of each cross-crest, and the third is between them. The anterior part of the anterior external crescent is produced, as is also the posterior part of the posterior.

In the milk dentition, the teeth which occupy the position of the third and fourth permanent premolars are first protruded, and afterwards the second deciduous premolar, and later the first true molar.

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*The Homologies and Origin of the Molar Teeth of Mammalia, etc. Journal Academy Nat. Sciences, Philada., 1874, pp. 13–14.

Two species of this genus are known to me, one of which has been found in the White River beds of Colorado, and the other in the corresponding horizon in Oregon, viz: the *A. quadriplicatus* and the *A. tubifer*.

Without fuller material it is not easy to determine the near affinities of *Anchisodon*. While the identity of the forms of some of the premolar and molar teeth is much as in the *Rhinoceridæ*, and distinguishes the genus from *Lophiodon*, *Hyrachyus*, etc., the details of the molars are more like those of the latter genera. The elongation of the second premolars have, on the other hand, a point of similarity to the *Anchitheroid* forms.

HYRACODON Leidy.

Proceedings of the Academy of Natural Sciences, Philadelphia, 1856, p. 92; 1857, p. 89; Extinct Fauna Dakota and Nebraska, p. 232.

Professor Leidy has published the dental and several cranial characters of this genus, so that there remain but few of these to be observed. Professor Marsh has stated the number of the toes,* and I will add some points not noticed by either of these paleontologists.

The dental formula is I. $\frac{3}{3}$; C. $\frac{1}{1}$; Pm. $\frac{4}{3}$; M. $\frac{3}{3}$. The incisors and canines form uninterrupted series in both jaws, which are separated by diastemata from the molar series. In their unworn condition, the crowns of the incisors and canines are subconic. The molars of both jaws do not differ in character from those of *Aceratherium*, but the last superior molar differs in not having the posterior cross-crest confounded with the external wall.

According to Leidy, the premaxillary bone reaches the base of the nasal. The temporal fossæ are large and approach each other above. A character heretofore unnoticed is the appearance of the mastoid bone between the posttympanic and the paroccipital processes, as in horses, thus differing from rhinoceroses. As in *Aceratherium*, the posttympanic does not close the meatus auditorius inferiorly. Postglenoid well developed. This genus also differs from the rhinoceroses in the absence of the tuberosity behind the condyle of the lower jaw.

The vertebral column is characterized by the length of the cervical portion as compared with the dorsal, especially of the axis. The vertebrarterial canal is long and external; the centra are keeled below, and the transverse processes of the atlas are not elongate. The opisthocœlous character is well marked in both cervical and dorsal centra. The zygapophysial facets of the dorsals are not recurved in any way, and there are some metapophyses on the posterior dorsals. There are no enclosed spinal foramina on the dorsals. Lumbars unknown.

A single species of this genus, the *H. nebrascensis*, was found by Hayden in Nebraska, and I obtained in Colorado in 1873 a second one, the *H. arcidens*.

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*Amer. Journ. Sci. Arts, 1877, p. 361.

ACERATHERIUM Kaup.

Isis, von Oken, 1832; Jahrbuch für Mineralogie, 1832, 419; Ossemens Fossiles, 49–61.

Dentition: I. $\frac{2}{1}$; C. $\frac{0}{1}$; Pm. $\frac{4}{3-4}$; M. $\frac{3}{3}$; digits 4—3; nasal bones without horn basis.

This genus is characteristic of the Miocene or Middle Tertiary formations of Europe, and is the primitive form of the true rhinoceroses. Its four anterior digits relate it to the lower or more generalized perissodactylous types of the same and of older geological horizons, which are equally allied to the tapirs. The dentition differs from that of the genus *Rhinocerus* in the presence of two superior incisors, but agrees with it in the existence of one incisor and one canine on each side below, and in the forms of the premolar teeth. The species display great simplicity in the character of the crests of the molars. They also possess the tapiroid feature of the non-closure of the auditory meatus below by the posttympanic process; and the postglenoid process is generally more like that of the tapirs than are those of the later genera *Aphelops* and *Rhinocerus*. The form of the femur is also quite characteristic, presenting tapiroid characters again in the shape of the great trochanter. This process is not flat and obliquely truncated as in the genera above named, but is horizontal proximally, and with a produced recurved apex and posterior crest, which bound a large fossa.

In this paper, four species are referred to this genus, but provisionally only, on account of the absence of certain diagnostic parts of the skeleton. These species are, in the order of size, beginning with the smallest, as follows: *A. mite* Cope; *A. occidentale* Leidy; *A. pacificum* Leidy; *A. truquianum* Cope. I only possess the feet in *A. pacificum*, and these are not entirely complete; the nasal bones are wanting from all my specimens. The inferior incisors or canines are present in all; but I have only the superior incisor of *A. pacificum*. Leidy describes that of *A. occidentale*, and I have the premaxillary bones with the incisive alveoli of the same. I possess the posterior cranial regions of all the species except the *A. truquianum*, and these present the characters above described.

The species above mentioned are generally of smaller size than those of the Loup Fork formation, which have been referred to the genus *Aphelops*. The largest *Aceratherium*, *A. truquianum*, is not much less than the smallest of the *Aphelopes*, *A. megalodus*.

Should any of the four species here included be found to possess but three toes in the anterior foot, such must be referred to *Aphelops*.

APHELOPS Cope.

Paleontological Bulletin, No. 14, p. 1, July 25, 1873.—Proceedings Amer. Philosophical Society, 1873, (1874), p. 520.—Hayden's Ann. Report U. S. Geol. Survey Terrs., 1873, (1874), p. 519.—Report U. S. Geol. Geogr. Surv. W. of 100th Mer., G. M. Wheeler, vol. iv, pt. ii, p. 315.

Dental formula; I. $\frac{?\,1}{1}$; C. $\frac{0}{1}$; Pm. $\frac{4-3}{3}$; M. $\frac{3}{3}$. Digits 3—3. Nasal bones with persistent suture, weak, not supporting a dermal horn.

This genus occupies a position intermediate between *Aceratherium* Kaup and *Rhinocerus* Linn. It agrees with the former in the presence of incisor and canine teeth, and in the absence of indication of a nasal horn, but differs from it in lacking the fifth digit of the anterior foot. In the last respect it is identical with the genus *Rhinocerus*, differing from it in characters already mentioned, in which it agrees with *Aceratherium*. From *Atelodus* Pom. it differs still more widely, as that genus wants incisor and canine teeth.

The evidence on which this genus rests is furnished by two species, the *Aphelops megalodus*, and a second form, whose bones I have provisionally associated with the crania of *A. fossiger*. In both of these animals, the number of anterior digits is known to be only three, and in the former the inferior canines and alveoli for incisors can be seen in the specimens. In two other species provisionally referred to the same genus, the *A. crassus* and *A. malacorhinus*, the digits and incisor teeth are unkown, but the last named species was certainly hornless, and it is supposed that the first named was so also. Of the many mandibular symphyses from the Loup Fork formation which I have seen, none lack the canines and incisor teeth, so that it is probable that this character belonged to the two species above mentioned. A fifth species, the *A. meridianus* Leidy, I have provisionally referred here on account of the similar character of the mandibular dentition; but its nasal bones and feet are unknown. Still another species, the *A. jemezanus* Cope, has been referred here, but on no other ground than that it is found in the same formation as the others.

Specific characters.—The species above named all present well-marked cranial or dental characters, or both. But it is important to take into consideration the general structure of the skeleton. I am in position to do this with three of the species named, the *A. megalodus*, the *A. fossiger* (of this paper), and the *A. malacorhinus*, and find distinctive characters present in nearly all their bones which I have observed. The *A. malacorhinus* is a comparatively long-limbed animal, and its apparent elevation was increased by the shortness of the body, and especially of the neck. There was probably a great development of the upper lip, or snout, and the face was concave in profile. The *A. megalodus* was somewhat intermediate in proportions between this species and the *A. crassus*. Its limbs were shorter than in the *A. malacorhinus*, and the neck was longer. The feet were more slender. The *A. fossiger* had still shorter legs, and the length of the neck was about as in *A. malacorhinus*.

In its form it must have been much like a *Hippopotamus*. Its limbs, and especially the feet, were very robust.

The five species may be distinguished by the characters of their superior molar teeth as follows:

I. Fundus of the transverse valley divided by processes.
    Posterior marginal fossa open; transverse crests, the posterior with a long anterior process, the anterior with a long posterior process ..... *A. crassus.*
II. Fundus of transverse valley without processes.
  a. Posterior marginal fossa open, except in advanced wear.
    Posterior cross-crest with a strong anterior process; premolars with a cingulum extending round the posterior cross-crest............ *A. malacorhinus.*
    Posterior cross-crest with strong anterior process; no cingulum on posterior cross-crest of premolars; internal cingulum of true molars; smaller. *A. meridianus.*
    Posterior cross-crest with little or no anterior process; cingulum wanting from posterior cross-crest of premolars and from inner side of true molars; larger .... *A. megalodus.*
  aa. Posterior marginal fossa enclosed by a high posterior cingulum.
    Strong anterior process of posterior cross-crest and posterior process of anterior cross-crest; no cingulum on true molars; large .... *A. fossiger.*

Position.—The longest known species, the *A. crassus*, was found by Dr. Hayden on the Niobrara River, Nebraska. Teeth presenting the same characters have been found in Northern Kansas and Eastern Colorado. The other species are more restricted geographically. A considerable exploration in the Loup Fork beds of Northeastern Colorado, conducted by myself in 1873, yielded four individuals of *A. megalodus*, but no fragments referable to the other species. Explorations in Northern Kansas produced three individuals of *A. fossiger* and four of *A. malacorhinus*, but not a fragment of *A. megalodus.*

History.—In my original definition of this genus, I relied on the number of premolars in distinguishing it from *Rhinocerus*, as well as on the absence of the horn. These teeth are generally $\frac{3}{3}$ in *Aphelops*, and are said to be $\frac{4}{4}$ in *Rhinocerus*, in most works on the subject. These numbers are not constant; on one side of both jaws in *Aphelops* from Colorado I have observed a first premolar, and on one side of the upper jaw of *A. malacorhinus* there are four premolars; the other side is injured. In several species of *Rhinocerus*, three premolars only are usually found in the mandible. I may add that Lesson and Peters* have described a *Rhinocerus inermis* Less., which is found living on some of the islands at the mouth of the Ganges. The only known specimens are the skulls with portions of the skin, of a female and young. These are hornless, and in general structure allied to the *R. sondaicus*, yet presenting some important differences.† Should the characters of this form prove to be specific, and the male be found to lack the horn, it must be regarded as a species of *Aphelops*.

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*Monatsberichte Berlin. Akademie, 1877, p. 68, pl. 1–2.

†Peters represents the posttympanic as not coössified below the meatus as in *R. sondaicus.*

Art. XVII.—Second Instalment of American Ornithological Bibliography.

By Dr. Elliott Coues, U. S. A.

Part First of the "Birds of the Colorado Valley", etc., contains a Bibliographical Appendix (pp. 567–784, or [1]–[218]), which consists of a "List of Faunal Publications relating to North American Ornithology", being the first instalment of a Universal Bibliography of Ornithology upon which the author of that work is still engaged.

The present article may be considered to continue the subject, as it gives the titles of "Faunal Publications" relating to the Ornithology of the rest of America.

The former piece of work has been received with great favor by ornithologists, whose kind expressions of interest assure him that his bibliographical material is welcome.

This further instalment of the work is constructed upon the same principles as the other, and with the same great pains to secure good results. Though of course much less extensive, containing only about 700 titles, it is scarcely less complete, and no less accurate, than the North American portion. The compiler takes this occasion to renew the request that those who are interested in the matter will point out defects which may be detected in any portion of the work now printed.

To those who may not be informed of the general plan of the whole Bibliography, he may explain that it is modelled after the "Zoological Record", and that the titles given in this second instalment are only those which an editor of the "Record" would have brought under the head of "Neotropical Region"—all general and miscellaneous works, and all those upon particular species, genera, or families of birds, being excluded.

1648. Marcgrave, G. Historia Natvralis | Brasiliae, | Auspicio et Beneficio | Illustriss. I. Mavritii Com. Nassav | illivs Provincjæ et Maris summi Praefecti Adornata | In qua | Non tantum Plantæ et Animalia, sed et In- | digenarum morbi, ingenia et mores describuntur et | Iconibus supra quingentas illustrantur. | Lvgdvn. Batavorvm, | Apud Franciscum Hackium, et | Amstelodami, | Apud Lud. Elzevirium. 1648. | [*Or*,]

Gulielmi Pisonis, M. D. | Lugduno-Batavi, | De | Medicina Brasiliensi | Libri Qvatvor: | I. De Aëre, Aquis, & Locis. | II. De Morbis Endemiis. | III. De Venenatis & Antidotis. | IV. De Facultatibus Simplicium. | Et | GeorgI MarcgravI de Liebstad, | Misnici Germani, | Historiæ Rervm Na-

1648. MARCGRAVE, G.—Continued.

tvralivm | Brasiliæ, | Libri Octo; | Quorum | Tres priores agunt de Plantis. | Quartus de Piscibus. | Quintus de Avibus. | Sextus de Quadrupedibus & Serpentibus. | Septimus de Insectis. | Octavus de ipsa Regione, & illius Incolis. | Cvm | Appendice de Tapuyis, et Chilensibvs. | Ioannes De Laet, | Antwerpianus, | In ordinem digessit & Annotationes addidit, & varia ab Auctore | Omissa supplevit & illustravit. |

Above titles covering both Piso and Marcgrave; latter also separately subtitled in nearly identical words, omitting the Piso part of the title. 1 vol. folio. Engraved title to both, 1 l.; plain title to both, 1 l.; Piso to Prince William, 2 ll.; Piso to the reader, 1 l.; Piso's contents, 1 l.; Piso's text, pp. 1–122; Piso's index, 1 l.—Marcgrave's subtitle, 1 l.; Marcgrave's dedication, 1 l.; De Laet to the reader, 1 l.; Marcgrave's contents and errata, 1 l.; Marcgrave's text, pp. 1–292; Appendix, p. 293; Index, ½ + 3 ll. Unnumbered cuts in text of both authors.

The *fifth* book of Marcgrave's part of this work treats of birds in fifteen chapters, as follows:—

Georgi Marcgravi Historiæ Naturalis Brasiliæ Liber Quintus, Qui agit de Avibus, in Quo sunt Icones quatuor supra quinquaginta, et Annotationes octo, pp. 190–220, Cap. I.–XV.—I, p. 190, Nhanduguacu, Iacana (fig.), variæ ejus species, Curicaca (fig.). II, p. 192, Tijepiranga (fig.), Iacapu, Iambu, Gallina africana (fig.), Guirangeima, Iupujuba (fig.), Sayacu, Ani (fig.), Guira guainumbi (fig.). III, p. 194, Jaguacati (fig.), Mitu (fig.), Mituporanga (fig.), Ibijau (2 figg.). IV, p. 196, Guainumbi variæ species (fig.). V, p. 198, Iacupema (fig.), Iacamacaij (fig.), Iacurutu (fig.), Soco (fig.), Matuitui (fig.). VI, p. 200, Iabiru (fig.), Iabiru guacu (fig.), Manucodiata. VII, p. 201, Guirapunga utraque (2 figg.), Guiraquerea (fig.), Jacamaciri (fig.), Cariama (fig.) VIII, p. 203, Guara (fig.), Urutaurana (fig.), Maguari, Guarauna (fig.), Ajaia, Picui pinima, Pica cureba, Tuidara, Guacuguacu, Tapera. IX, p. 205, Psittacorum majorum & minorum variæ species. Tui vulgo Perroquet. Araracanga (fig.), etc. X, p. 207, Ipecu (fig.), Urubu (fig.), Tamatia utraque (2 figg.), Guirajemoja (fig.), Gurraru nheengeta (fig.). XI, p. 209, Cocoi Ardeae species (fig.); alia species, Guiratinga, Ardeola (fig.), Iacarini, Guiratirica, Guiranheengatu. XII, p. 211, Curucui (fig.), Caracara (fig.), Tijeguacu (fig.), Teitei, Guiragiracu beraba (fig.), Guiracoereba, Guiraperea, Iapacani, Cabure, Andira aca. XIII, p. 213, Macucagua (fig.), Columbæ silvestris species, Anas sylvestris, Urubitinga (fig.), Mareca utraque, Tiieguacu paroara (fig.), Tangara utraque (fig.). XIV, p. 215, Anhima (fig.), Pitangua guacu (fig.), Atingacu camucu (fig.), Guira acangatara (fig.). XV, Matuitui (fig.), Aracari, Tucana, Anhinga (fig.), Ipecati apoa (fig.), Pullus gallinaceus monstrosus (quadrupes, fig.).

The figures are monstrous, reminding us of those of Gesner, for example, though many of the marked species are recognizable. The text, however, is minutely descriptive, and most of the species are identifiable.

This is a celebrated work, standing in much the same ornithological relation to South America that its virtual contemporary, Hernandez's, bears to Mexico. We have here the first description and primary basis of many species. Linnæus and other early species-makers cite Marcgrave freely, and he remains, in fact, quotable to-day. The reader will not fail to note that he has here the vernacular derivation of many names with which he is familiar in their quasi-Latin and even English rehabilitation, but the etymology of which would not necessarily be obvious to a classicist. Compare with the above the following, for example: *Nandou, Pyranga, Guira, Guiraca, Ani, Mitu, Mituporanga, Jacamar, Nacurutu, Jabiru, Cariama, Ajaja, Cœrcba, Maguari, Guarauna, Tapera, Aracanga, Ararauna, Urubu, Nengeta, Cocoi, Carasara, Urubitinga, Tangara, Tanagra, Pitangus, Aracari, Tucana, Toucan,* etc.

For an elaborate commentary on this work, see 1820 and 1824, LICHTENSTEIN, H.

1658. ROCHEFORT, C. DE. Histoire | naturelle et morale | des | Iles antilles | de l'Amerique. | Enrichie de plusieurs belles figures des Raretez les plus | considerables qui y sont décrites. | Avec vn Vocabulaire Caraïbe. | [Dessin.] | A Roterdam, | Chez Arnoüld Leers, | — | M. DC. LVIII. 1 vol. 8vo or sm. 4to. Eng. title, 8 prel. pp. incl. regular title, pp. 1–527, 6 ll. (contents).

Chapitre Quinziéme, pp. 147–167, a fig. on p. 152, and a page of figs. on p. 166, "Des oiseaus les plus considerables des Antilles", des Fregates, des Fauves, des Aigrettes, etc., du Grand Gosier, des Poules d'eau, des Flammans (= *Platalea*), de l'Hirondelle, de plusieurs Oiseaux de terre, des Arras, des Canides, des Perroquets, des Perriques du tremble, du Passereau, de l'Aigle de l'Orinoco, du Mansfeny, du Colibry.—This is the orig. ed.

1666. Rochefort, C. de. The History of the Caribby-Islands, viz. Barbades, [etc.] In two Books. The First containing the Natural the Second the Moral History, of these islands. Illustrated, [etc.] Rendered into English by John Davis of Kidwelly. London. 1666. 4to. pp. 336, 4 pll.

Not seen: title from Sabin's *Bibl. Amer.* Orig. ed. 1658, *q. v.*

1667. [Stubbes, Dr. —.] Observations Made by a Curious and Learned Person, sailing from England, to the Caribe-Islands. <*Philos. Trans.*, ii, 1667, pp. 493–500.

1667. Warren, G. Impartial Description of Surinam, . . . with a History of several strange Beasts, Birds, etc. 1667.

Not seen. [See beyond, Addenda, 1745.]

1668. Stubbes, Dr. —. An Enlargement of the Observations, formerly publisht, Numb. 27, made and generously imparted by that Learn'd and Inquisitive Physitian, Dr. Stubbes. <*Philos. Trans.*, iii, 1668, pp. 699–709.

Allusions to a few birds.

1681. [Rochefort, C. de.] Histoire | Naturelle et Morale | des | Iles Antilles | de l'Amerique, | Enrichie d'un grand nombre de belles Figures en taille douce, qui | representent au naturelles Places, & les Raretez les plus | considerables qui y sont décrites. | Avec un Vocabulaire Caraïbe. | Derniere Edition. | Reveuë & augmentée par l'Autheur d'un Recit de l'Estat present des | celebres Colonies de la Virginie, de Marie-Land, de la Caroline, du | nouveau Duché d'York, de Penn-Sylvania, & de la nouvelle An- | gleterre, situées dans l'Amerique septentrionale, & qui rele- | vent de la Couronne du Roy de la grand' Bretagne. | Tiré fidelement des memoires des habitans des mêmes Colonies, | en faveur de ceus, qui auroyent le dessein de s'y | transporter pour s'y établir. [Par César de Rochefort.] | [Vignette.] | A Rotterdam, | Chez Reinier Leers, | — | M. DC. LXXXI. 1 vol. Sm. 4to. Eng. title, plain title, both backed blank, and 16 more unpaged ll., pp. 1–583, and 13 unpaged pp.; then follow pp. 1–43, with a separate title, backed blank; many plates and other illustrations.

Orig. ed. 1658, *q. v.* Chap. XV, pp. 163–182, "Des oiseaus les plus considerables des Antilles"; cut on p. 168, and page full of cuts p. 182.

1682. Nieuhof, J. Joan Nieuhofs Gedenkwaerdige Zee en Lantreize door de Voornaemste Landschappen van West en Oostindien. Amsterdam. 1682. Folio.

Not seen. "The second part, beginning at p. 29, contains a cut representing several birds and a bat, with text descriptive of these and numerous other Brazilian birds. The figures are very good, much better than Marcgrave's; the names are vernacular."—J. A. Allen, *in epist.* [See beyond, Addenda.]

1703. Oliver, W. A Letter from Dr. William Oliver to the Publisher, giving his Remarks in a late Journey into Denmark and Holland. <*Philos. Trans.*, xxiii, 1703, pp. 1400–1410.

Contains an account of a curious bird seen in Amsterdam from "Carthagena in America", described as "Vultur Americanus minor Carthagenæ Corpore eleganti & plumis admodum Concinne variegatis".

1707–25. Sloane, H. A | Voyage | To the Islands | Madera, Barbados, Nieves, S. Christophers | and | Jamaica, | with the | Natural History | of the | Herbs and Trees, Four-footed Beasts, Fishes, | Birds, Insects, Reptiles, &c. | Of the last of those Islands; | To which is prefix'd An | Introduction, | Wherein is an Account of the | Inhabitants, Air, Waters, Diseases, Trade, &c | of that Place, with some Relations concerning the Neigh- | bouring Continent, and Islands of America. | — | Illustrated with | The Figures of the Things describ'd, | which have not been heretofore engraved; | In large Copper-Plates as big as the Life. | — | By Hans Sloane, M. D. | Fellow of the College of Physicians and Secretary | of the Royal-Society. | — | In Two Volumes. Vol. I [II]. | — | Many shall run to and fro, and Knowledge shall be increased. Dan. xii. 4. | — | London: | Printed by B. M. for the Author, 1707 [1725]. 2 vols. Folio.

1707–25. SLOANE, H.—Continued.

Vol. I, 1707, 8 p. ll., pp. i–cliv, 1–264, pll. i–iv (i being a map), 1–156. Vol. II, 1725, 2 p. ll. (title and dedication), pp. i–xviii, 1–499, pll. v–xi, 157–274.

There are some literal discrepancies in the titles of the two vols.: in the second the author appears as "Sir Hans Sloane, Bar^{t}.", and the last line is simply "Printed for the author. 1725."—Vol. II, Book VI, Part II, pp. 293–325, "Of the Birds of Jamaica", pll. 254–272.—Chap. I, Of Land Birds, 54 spp. Chap. II, Of Birds which Wade, or Frequent Watery Places, 17 spp. Chap. III, Of Water-Fowl, or such as are web-footed and Swim, 11 spp.; in all, 82 spp. The plates are very coarse and poor; some of them are as ludicrous as anything in Gesner, for example. The ornithology of this work has no intrinsic value, but derives some importance from the fact that here are the original descriptions of various birds upon which Linnæan species rest wholly or in part. Sloane's pages and plates were constantly cited by writers of the century, as Catesby, Edwards, Brisson, Linnæus, etc., and are sometimes referred to still.

1724. LABAT, —. Nouveau Voyage aux Iles de l'Amérique. 1724.

Not seen: said to contain natural history illustrations. [See ADDENDA, beyond.]

1729. WAFER, L. A New | Voyage | and | Description | of the | Isthmus of America. | Giving an Account of the | Author's Abode there, | The Form and Make of the Country, the Coasts, | Hills, Rivers, &c. Woods, Soil, Weather, &c. Trees, | Fruit, Beasts, Birds, Fish, &c. | The Indian Inhabitants, their Features, Complexion, | &c. their Manners, Customs, Employments, | Marriages, Feasts, Hunting, Computation, | Language, &c. | With Remarkable Occurrences in the South-Sea and | elsewhere. | — | By Lionel Wafer. | — | The Third Edition. | — | To which are added, | The Natural History of those Parts, | By a Fellow of the Royal Society: | and | Davis's Expedition to the Gold Mines, in 1702. | Illustrated with several Copper-Plates. | — | London, | Printed for James and John Knapton, at the | Crown in St. Paul's Church-Yard. M.DCC XXIX.

Contained in vol. III of the series called "A Collection of Voyages", etc., 4 vols., London, 1729, being pp. 263–463 + 9, maps, plates.

"The Birds, and Flying Insects", pp. 334–339, consists of an account of sundry species by the author.

"An Additional Account of several Beasts, Birds, Fishes, Reptiles, &c, . . . Communicated by a Member of the Royal Society", Chap. II. Of the Birds, pp. 402–410. A formal account of no fewer than 118 spp., very curtly described under English names applied wholly at random.

1749. CONDAMINE, C. M. DE LA. Relation abrégée d'un Voyage fait dans l'intérieur de l'Amérique méridionale, depuis la Côte de la Mer du Sud, jusques aux Côtes du Brésil & de la Guiane, en descendant la rivière des Amazones. < *Mém. de l'Acad. Roy. des Sci. pour l'année* 1745, 1749, pp. 391–492, pll. viii, ix.

Notes sur les oiseaux, pp. 471–474.

1750. HUGHES, G. The | Natural History | of | Barbados. | — | In Ten Books. | — | By the Reverend | Mr. Griffith Hughes, A. M. | Rector of St. Lucy's Parish, in the said Island, and F. R. S. | — | [Vignette.] | — | London: | Printed for the Author; | And sold by most Booksellers in Great Britain and Ireland. MDCCL. 1 vol. Folio. 8 p. ll. (title, dedication, subscribers, etc.), pp. i–viii (preface, errata), 1–314, + 11 ll. (explanatory notes, index, addenda), pll. 1–29, folded map, and head- and tail-pieces.

Book III, pp. 69–79, Of Birds. A few species are very lightly treated, though it is stated that "An Inspection into the Structure, Nature and Qualities of every Species will convince us, that every Individual is stamped with Marks of infinite Wisdom".

1756. BROWNE, PATRICK. The | Civil and Natural | History | of | Jamaica. | In Three Parts. | Containing, | I. An accurate Description of that Island, its Situation and Soil; | with a brief Account of its former and present State, Government, | Revenues, Produce, and Trade. | II. A History of the natural Productions, including the various Sorts | of native Fossils; perfect and imperfect Vegetables; Quadrupedes, | Birds, Fishes, Reptiles and Insects; with their Properties and Uses | in Mechanics, Diet, and Physic. | III. An Account of the Nature of Climates in General, and their | different Effects upon the human Body; with a Detail of the | Diseases arising from this Source, particularly within the Tropics. | In Three Dissertations. | The Whole illustrated with

1756. Browne, Patrick.—Continued.

Fifty Copper-Plates: | In which the most curious Productions are represented of the natural Size, and | delineated immediately from the Objects. | — | By Patrick Browne, M. D. | — | London: | Printed for the Author; and sold by T. Osborne, and J. Shipton, | in Gray's-Inn. MDCCLVI. 1 vol. Folio. 4 p. ll. (two titles, dedication, and list of subscribers), pp. v–viii (preface), 1–503, + 1 l., pl. i, map, pll. 1–49.

Chap. IV, Of Birds, pp. 466–483, none of the plates. § 1. Of the smaller frugivorous and granivorous birds with short and pointed conic bills, etc.: *Hirundo* 4, *Loxia* 1, *Fringilla* 5, *Motacilla* 1. § 2. Of the smaller granivorous and vermivorous birds with conic and moderately slender lengthened bills, etc.: *Columba* 10, *Teta* 1, *Turdus* 2. § 3. Of birds of the larger granivorous tribe with thick, conic, and moderately arched bills, proportioned limbs, and divided claws: *Pavo* 1, *Crax* 1, *Meleagris* 1, *Gallus* 4, *Tetrao* 1. § 4. Of birds that have strong crooked bills and open claws, whose digits are generally furnished with strong arched nails: *Falco* 3, *Vultur* 1, *Psittacus* 11, *Strix* 2. § 5. Of birds that have large straight bills, of a length nearly equal to the middle digits, and moderately flatted above: *Corvus* 1, *Crotophagus* 1, *Picus* 1, *Baristus* 1. § 6. Of birds that have long slender bills that arch and taper very moderately to the top: *Polytmus* 4, *Todus* 1, *Oriolus* 1, *Cuculus* 1, *Merops* 1, *Xanthornus* 2. § 7. Of birds whose bills are of a length with or longer than the middle digits, having long legs, partly naked thighs, and divided claws, and living chiefly in watery places, though they do not swim: *Tringa* 2, *Numenius* 1, *Ardea* 7. § 8. Of water-fowls, or birds that pass a considerable part of their time upon the water: *Fulica* 4, *Colymbus* 1, *Phœnicopterus* 1, *Pelecanus* 1, *Cygnus* 2, *Anas* 6, *Anœthetus* 2, *Larus* 4, *Sterna* 3, *Alcyon* 2. Under such classification the number of species indicated by the figures given are treated, with numbered generic, but no specific names, with Latin diagnoses, some little synonymy, both Latin and vernacular, and miscellaneous observations. It was a considerable ornithological treatise in its time, freely cited by Brisson, Linnæus, Edwards, and others; and some of these descriptions, like Sloane's, are the bases of species.—This is the orig. ed.; there is another, 1789.

1769. [Bancroft, E.] An | Essay | on the | Natural History | of | Guiana, | In South America. | Containing | A Description of many Curious Productions | in the Animal and Vegitable Systems | of that Country. | Together with an Account of | The Religion, Manners, and Customs | of several Tribes of its Indian Inhabitants. | Interspersed with | A Variety of Literary and Medical Observations. | In Several Letters | from | A Gentleman of the Medical Faculty [E. Bancroft], | During his Residence in that Country. | — | —Ad res pulcherrimas ex tenebris ad lucem erutas alieno | labore deducimur. | Seneca, De brevitate vitæ, cap. xiv. | — | London, | Printed for T. Becket and P. A. De Hondt | in the Strand. MDCCLXIX. 1 vol. 16mo. Frontisp. (2-headed snake), 2 p. ll. (title and dedication), pp. i–iv, 1–402, + 3 ll. (contents and advts.).

This anonymous work, by Dr. E. Bancroft, contains, pp. 152–185, "the Description of Birds inhabiting the aerial regions of Guiana, which, for the variety, vivacity and lustre of colours that adorn their plumage, are no where excelled".—There is a German version of same date.

1769. Bancroft, E. Naturgeschichte | von | Guiana | in | Süd-Amerika. | worinn | von der natürlichen Beschaffenheit und den vor- | nehmsten Naturproducten des Landes, ingleichen der Re- | ligion, Sitten und Gebräuchen verschiedener Stämme | der wilden Landes-Einwohner, Nachricht | ertheilet wird. | — | In vier Briefen. | Von | Eduard Bancroft, Esq. | — | Aus dem Englischen. | — | [Quotation from Seneca.] | — | Frankfurt und Leipzig, | bey J. Dodsley und Compagnie, 1769. 1 vol. 16mo. Frontispiece (2-headed snake), pp. i–x, 1 l., pp. 1–248, 1 l.

Vögel, pp. 91–112. In dieser Ausgabe, die Arten die bereits in den Schriften des Herrn Linné, oder von andern Schriftstellern beschrieben worden sind, sind mit den unter den Text gesetzten linnäischen Trivialnamen, oder Benennung anderer Schriftsteller kennbarer gemacht worden.—Vergl. die Originalausgabe, 1769.

1775. Sonnini de Manoncour, C. N. S. Observation sur les Coqs et Poules de l'Amérique méridionale. <*Journ. de Physique*, vi, 1775, pp. 128, 129.

Not seen: title from Carus and Engelmann.—The article doubtless refers to *Cracidæ* or *Tinamidæ*.

1775. Sonnini de Manoncour, C. N. S. Observation sur les Marcils ou Faisans de la Guiana. <*Journ. de Physique*, v, 1775, pp. 345–350.

Not seen: title from Carus and Engelmann.—*Tinamidæ? Cracidæ?*

1776. ANON. [Molina, G. I.] Compendio della Storia geografica, naturale e civile del regno del Chili. Bologna. 1776. 8vo. 10 pll.

Not seen. Giebel, doubtless from Engelmann, gives such an edition as of "Molina"; but the first recognized edition is of 1782, *q. v.* See also Molina at 1808 and 1810. I do not know what this is, or what it may contain. Some clue to it may be given in the preface of the English version of 1808, where the American translator says:—"Through the politeness of a gentleman of his acquaintance, the translator has also been furnished with an anonymous compendium of the history of Chili, printed in Bologna in 1776, from which the supplementary notes to this volume are taken."

In respect to this anonymous compend, here is what Molina himself says in his preface to the original edition of the "Saggio", 1782—it is tacit admission of its authorship—"Le storie, o piuttosto le relazioni stampate, oltre ai quattro Poemi, che corono impressi sulla guerra Araucana, . . . *ed un Compendio anonimo, che si pubblicò in lingua Italiana nel* 1776., il quale in certo modo dà una notizia più compiuta del Chili di quella, che danno le altre opere stampate, particolamente intorno alla Geografia, *e alla storia Naturale.* Nulladimeno come questo Compendio è anche troppo ristretto, così io ho creduto di fare un servigio non inutile agli amatori delle cose Americàne, presentando loro un ragguaglio più disteso e più circostanziato de' prodotti, e de' successi più notabili dello stesso Paese."

1776. CLAYTON, W. An Account of the Falkland Islands. <*Philos. Trans.*, lxvi, pt. i, 1776, pp. 99–108.

Considerable account of Penguins, Geese, and other birds, pp. 103–105.

1782. MOLINA, G. I. Saggio | sulla Storia Naturale | del | Chili | del Signor Abate | Giovanni Ignazio | Molina. | [Vignette.] | In Bologna MDCCLXXXII. | — | Nella Stamperia di S. Tommaso d'Aquino. | Con licenza de' Superiori. 1 vol. 16mo (sigs. A 1, 1 l.; A 2, 1 l.; A 3, 1 l.; A 4, 5 ll.). pp. 368, map opp. p. 17. >Libro IV. Vermi, Insetti, Rettili, Pesci, Uccelli, o Quadrupedi del Chili, pp. 196–367.

This is the *editio princeps* of the celebrated work. There are numerous later editions in various languages, which see below: German, Leipzig, 1786; Spanish, Madrid, 1788; French, Paris, 1789; American, Middletown, Conn., 1808; English, London, 1809; Italian again, Bologna, 1810. See especially 1808 and 1810. Consult also 1776, ANON. See *Trans. Linn. Soc.*, vii, p. 225; *Oken's Isis*, ix, 1833, p. 824; *Rev. Zoologique*, 1840, p. 147. See also Philippi's Comentario, *Anal. Univ. Chile*, xxix, 1867, pp. 788–795.

Molina is famous in the annals of South American ornithology. Being a binomenclator after the most approved fashion of the time, he is citable as authority for species, and most of those he describes are new, antedating Gmelin (1788) and Latham (*Ind. Orn.*, 1790). The ornithological matter consists, first, of a general treatise on the birds of Chili, pp. 232–268; second, of a synopsis, pp. 343–345, in which the species receive formal Latin diagnoses in the Linnæan manner (Catalogo delle nuove specie descritte in questo Saggio ordinate secondo il Sistema Linneano). The general text of the former is accompanied also by Latin diagnoses of the species treated in footnotes. As this edition is not very generally accessible, I give the names of the species treated, with the pages on which each occurs. All are new excepting the three marked "Linn."

Anas regia, pp. 234, 344; *A. coscoroba*, pp. 234, 344; *A. melancoripha*, pp. 234, 344; *Ardea erytrocephala*, pp. 235, 344; *A. galatea*, pp. 235, 344; *A. cyanocephala*, pp. 235, 344; *A. thula*, pp. 235, 344; *Columba melanoptera*, pp. 236, 345; *Picus lignarius*, pp. 236, 343; *P. pitius*, pp. 236, 343; *Diomedea chilensis*, pp. 238–344; *D. chiloensis*, pp. 239, 344; *Pelecanus thagus*, pp. 240, 344; *Anas hybrida*, pp. 241, 344; *Phœnicopterus chilensis*, pp. 242, 344; *Tantalus pillus*, pp. 243, 344; *Trochilus minimus* ("Linn."), p. 246; *T. cyanocephalus*, pp. 247, 343; *T. galeritus*, pp. 247, 343; *Fringilla barbata*, pp. 247, 345; *F. diuca*, pp. 249, 345; *Turdus thilius*, pp. 250, 345; *T. thenca*, pp. 250, 345; *Turdus curæus*, pp. 252, 345; *Sturnus loyca*, pp. 254, 345; *Phytotoma* (gen. nov.) *rara*, pp. 254, 345; *Psittacus cyanalysios*, pp. 256, 343; *P. chorœus*, pp. 257, 343; *P. jaguilma*, pp. 257, 343; *Parra chilensis*, pp. 258, 344; *Otis chilensis*, pp. 250, 344; *Struthio rea* (Linn.), p. 261; *Strix cunicularia*, pp. 263, 343; *Falco tharus*, pp. 264, 343; *Vulcur* [sic] *jota*, p. 265, 343; *Vultur gryphus* (Linn.), p. 266.

The following is a complete and exact transcript of the systematic catalogue, pp. 343–345, giving the names and diagnoses of all Molina's new species:—

AVES.

Accipitres.

Vultur *Jota* niger, remigibus fuscis, rostro cineraceo.

Falco *Tharus* cera, pedibusque luteis, corpore albo-nigrescente, vertice cristato.

Strix *Cunicularia* capite lævi, corpore supra fusco, subtus albo, pedibus tuberculatis pilosis.

1782. Molina, G. I.—Continued.

Picæ.

Psittacus *Jaguilma* macrourus viridis, remigibus apico fuscis, orbitis fulvis.
Psittacus *Cyanalysios* brachyurus luteo-virens, collare cæruleo, uropygio rubro.
Psittacus *Choræus* brachyurus viridis, subtus cinereus, orbitis incarnatis.
Picus *Lignarius* pileo coccineo, corpore albo, cæruleoque vittato.
Picus *Pitius* cauda brevi, corpore fusco maculis ovalibus albis guttato.
Trochilus *Cyanocephalus* rectirostris capite, remigibus, rectricibusque cæruleis, abdomine rubro.
Trochilus *Galeritus* curvirostris viridi-aureus, remigibus, rectricibusque fuscis, crista purpurea.

Anseres.

Anas *Melancorypha* rostro semicylindrico rubro, capite nigro, corpore albo.
Anas *Hybrida* rostro semicylindrico, cera rubra, cauda acutiuscula.
Anas *Regia* caruncula compressa frontali, corpore cæruleo subtus fusco, collari albo.
Anas *Coscoroba* rostro extremo dilatato, rotundato, corpore albo.
Diomedea *Chilensis* alis impennibus, pedibus compedibus tridactylis, digitis omnibus connexis.
Diomedea *Chiloensis* alis impennibus, pedibus compedibus tetradactylis palmatis, corpore lanuginoso cinereo.
Pelecanus *Thagus* cauda rotundata, rostro serrato, gula saccata.

Grallæ.

Phænicopterus *Chilensis* ruber, remigibus albis.
Ardea *Erythrocephala* crista dependente rubra, corpore albo.
Ardea *Galatea* occipite subcristato, corpore lacteolo, rostro luteo, pedibus coccineis.
Ardea *Cyanocephala* vertice cristato cæruleo, remigibus nigris albo marginatis.
Ardea *Thula* occipite cristato concolore, corpore albo.
Tantalus *Pillus* facie, rostro, pedibusque fuscis, corpore albo, remigibus rectricibusque nigris.
Parra *Chilensis* unguibus modicis, pedibus fuscis, occipite subcristato.
Otis *Chilensis* capite, juguloque lævi, corpore albo, vertice tectricibusque cinereis, remigibus primor. nigris.

Passeres.

Columba *Melanoptera* cauda cuneata, corpore cærulescente, remigibus nigris.
Sturnus *Loyca* fusco, alboque maculatus, pectore coccineo.
Turdus *Thilius* ater, axillis luteis, cauda cuneata.
Turdus *Thenca* fusco-cinereus, subtus pallido-cinereus, remigibus rectricibusquo apice albis.
Turdus *Curæus* ater nitens, rostro substriato, cauda cuneata.
Fringilla *Barbata* lutea, alis viridibus, nigro rubroque maculatis, gula barbata.
Fringilla *Diuca* cærulea, gula alba.
Phytotoma (*gen. nov.*) Rostrum conicum, rectum, serratum.
Nares ovatæ.
1. Phytotoma *Rara.*
Lingua brevis obtusa.

1783. Molina, G. I. Essai sur l'Histoire Naturelle de Chili. Paris. 1783. 8vo.

Not seen: title of this French version from Ag. & Strickl., *Bibl.*—Orig. ed. 1782, *q. v.* There is another French ed., 1789, *q. v.*

1784. Dobrizhoffer, M. Historia de Abiponibus, Equestri, Bellicosaque Paraquariæ Natione, locupletata copiosis Barbararum Gentium, Urbium, Fluminum, Terrarum, Amphibiorum, Insectorum, Serpentium præcipuorum, Piscium, Avium, Arborum, Plantarum, aliorumque ejusdem Provinciæ Proprietatum Observationibus; Authore Martino Dobrizhoffer, Presbytero, et per Annos duodeviginti Paraquariæ Missionario. Vienna, 1784.

The *editio princeps*, not seen by me. There is a German translation, Vienna, 1784, and a later English version, London, 1822, *q. v.*

1785. Sonnini de Manoncour, C. N. S. Du Sasa, Oiseau de la Guyane. < *Journ. de Physique*, xxvii, 1785, pp. 222–224.—*Licht. und Voigt's Magaz.*, (3), iv, 1787, pp. 45–50 (über den Sasa, einen Vogel aus Guiana).

Not seen: titles of both these articles from Carus and Engelmann. The "Sasa" is *Opisthocomus cristatus.* Giebel makes "du Sasa" a part of Sonnini's name.

1786. Fahlberg, S. Slutet, af Samlingar til Natural-Historien öfver Ön St. Barthelemi i Vestindien. < *Kongl. Vetensk.-Acad. Nyt Handl.*, vii, 1786, pp. 248–254.

Chiefly botanical; a few birds given on p. 253.

1786. **Molina, G. I.** Versuch | einer | Naturgeschichte | von | Chili. | — | Von | Abbé J. Ignatz Molina. | Aus dem Italiänischen übersetzt | von | J. D. Brandis, | Doctor der Arzneywissenschaft. | — | Mit einer Landcharte. | — | Mit Churfürstl. Sächsischer Freyheit. | — | Leipzig, | bey Friedrich Gotthold Jacobäer 1786. 1 vol. 16mo (sigs. *1, 1 l.; *2, 1 l.; *3, 1 l.; *4, 1 l.; *5, 4 ll.). 9 p. ll., pp. 1–328, map.

See the orig. ed., 1782. In this German version, the birds are at pp. 205-238, 304-306.

1788. **Molina, G. I.** Compendio | de la Historia Geografica, | Natural y Civil | del Reyno de Chile, | escrito en Italiano | por el Abate Don Juan | Ignacio Molina. | Primera [Segunda] Parte, | que abraza la Historia Geografica | y Natural, | traducida en Español | Por Don Domingo Joseph | de Arquellada Mendoza, Individuo de la | Real Academia de Buenas Letras de Sevilla, y Maestrante | de Ronda. | En Madrid | por Don Antonio de Sancha. | Año M. DCC. LXXXVIII. | Se hallará en su Libreria en la Aduana vieja. 2 vols. sm. 4to shape, 16mo type-bed (sigs. *1, 1 l.; *2, 4 ll.; **2, 4 ll., etc.). Vol. I, pp. i–xx, 1–418, 1 map.

See the orig. ed., 1782. Only the first vol. is here cited; the second has a different title, though beginning similarly, relates to the civil history of Chili, translated and augmented by various notes by Nicolas de la Cruz y Bahamonde, and dates 1795; has portrait of Molina and several maps.

In this Spanish version, the bird-matter is in Part or Vol. I, as above cited, pp. 257-301, 390-393.

1789. **Browne, Patrick.** Civil and Natural History of Jamaica. London. 1789. Fol.

Not seen: said to contain a Linnæan index. It is the 2d ed. See the orig. ed., 1756.

1789. **Molina, G. I.** Essai | sur | L'Histoire Naturelle | du Chili, | Par M. l'Abbé Molina; | Traduit de l'Italien, & enrichi de notes, | Par M. Gruvel, D. M. | — | A Paris, | Chez Née de la Rochelle, Libraire, rue du | Hurepoix, près du pont Saint-Michel, nº. 13. | — | M. DCC. LXXXIX. | Avec Approbation et Privilège du Roi. 1 vol. 16mo. (sigs. a 1, 1 l.; a 2, 1 l.; a 3, 1 l.; a 4, 5 ll.). pp. i–xvj, 1–352, no map.

See the orig. ed., 1782. In this French version, the bird-matter is at pp. 211-249, 321-324. The translator makes a separate head ("§ XXXV. Oiseaux. Gùnùn en Chilien.") for the birds, and introduces Molina's binomials into the general text, in brackets.

1792. **Richard, L. C.,** *and* **Bernard, J. P.** Catalogue des Oiseaux envoyés de Cayenne par Le Blond. <*Actes Soc. Hist. Nat. Paris*, i, 1792, pp. 116–119.

Not seen: title from Carus and Engelmann, *Bibl.*

1794. **West, H.** Beyträge | zur | Beschreibung | von | St. Croix. | — | Nebst einer | kurzen Uebersicht | der benachbarten Inseln, | St. Thomas, St. Jean, Tortola, Spanishtown | und Krabbeneyland | von | Hans West, | Rector am Westindischen Schulinstitut. | — | Aus dem Dänischen, | mit Verbesserungen und Vermehrungen des Verfassers. | — | Kopenhagen, 1794. | Bey C. G. Proft, Sohn und Compagnie. 1 vol. 16mo. 2 p. ll., pp. 1–274.

Orig. ed. 1793, [*q. v.*, beyond, Addenda.] *Ardea coerulea* and *Fulica chloropus*, p. 243.

1802–05. **Azara, F. de.** Apuntamientos | para la Historia Natural | De Los Páxaros | del Paragüay | y Rio de la Plata, | escritos | Por Don Felix de Azara. | Tomo Primero [Segundo, Tercero]. | Madrid MDCCCII [MDCCCV]. | en la imprenta de la viuda de Ibarra. | Con licencia. 3 vols. very small 4to (type-bed size of a 12mo). Vol. I, 1802, 1 p. l., pp. i–xx, 1–534 + 1 l. Vol. II, 1805, 1 p. l., pp. i–viii, 1–562 + 1 l. Vol. III, 1805, 1 p. l., pp. i–vi, 1–479 + 1 l.

Editio princeps—scarce, and seldom actually consulted, though constantly quoted. Sonnini's French translation, Paris, 1809, is oftener handled. Azara describes 418 species, all unfortunately under Spanish names only, as many of them are here published for the first time, and form the original basis of many binomial names later bestowed by Vieillot, Temminck, Lichtenstein, and others, to which, in the nature of the case, much uncertainty and no little confusion attaches in many instances. Hartlaub has published an invaluable Systematic Index (Bremen, 1847) to Azara, identifying the species as far as possible, with a concordance of *ed. princ.* and *ed. Sonnini*, and a considerable synonymy. From the latter I quote the following, referring to the learned and accurate commentator himself for further particulars:—

"Nur Wenigen ist Azara's berühmtes Werk über die Vögel Paraguay's in der spanischen

1802–05. AZARA, F. DE.—Continued.

1802 bis 1805 zu Madrid erschienenen Originalausgabe bekannt. Erst durch Sonnini's sehr verdienstliche Uebersetzung wurde dasselbe für die Wissenschaft im weiteren Umfange zugänglich. In dieser Uebersetzung sind die oft etwas verworren aneinandergefügten Originalbeschreibungen zweckmässig in Formen, Maasse und Färbung gesondert, und des Verfassers Bekanntschaft mit den Vögeln Gujana's erhöht den Werth des critischen Theils desselben. Das erste Werk, in welchem Azara'sche Vögel systematische Benennungen erhalten, ist, wenn wir nicht irren, Temminck's ,,Histoire naturelle des Pigeons et des Gallinacées". Bald darauf versuchte Vieillot in dem 1816 bis 1819 bei Déterville herausgekommenen ,,Dictionnaire d'histoire naturelle" dieselben sämmtlich den dazumal aufgestellten Gattungen einzuverleiben und den seiner Ansicht nach zuvor unbeschriebenen wissenschaftliche Namen zu geben; ein Versuch, dessen mehr als zweifelhafter Erfolg namentlich dem Umstande beizumessen ist, das Vieillot diese Vögel nur nach Beschreibungen kannte, mithin sowohl hinsichtlich ihrer systematischen Stellung als auch ihrer Artselbständigkeit in zahlreiche Irrthümer verfallen musste. Unbenannt blieben von ihm nur wenige Arten, welche er nicht mit genügender Sicherheit in dieser oder jener Gattung unter bringen zu können glaubte. Für einzelne schuf er neue Genera, so Alectrurus für den ,,Gallito" und Steganopus für den ,,Chorlito del tarso comprimido". In den drei die Ornithologie umfassenden Theilen des ,,Tableau encyclopédique et méthodique des trois règnes de la nature" findet sich Vieillot's Nomenclatur der ,,Páxaros" mit geringen Abänderungen reproducirt. Gleichzeitig mit letztgenanntem Buche, also 1823, erschien Lichtenstein's ,,Verzeichniss der Doubletten des zoologischen Museums der Königl. Universität zu Berlin", ein Werkchen, welchem die Wissenschaft zum Theil aus dem Grunde einen dauernden Werth zugestanden hat, weil es die erste umfassendere critische Benutzung und Berücksichtigung der ,,Páxaros" enthält. Unter 120 darin aufgeführten brasilianischen vom Verfasser mit Arten Azara's für identisch erklärten Vögeln befinden sich etwa 50, welche, da derselbe das ,,Dictionnaire d'histoire naturelle" noch nicht kannte, von ihm systematische Benennungen erhalten, die denn freilich mit wenig Ausnahmen durch die früheren Vieillot's in den Rang von Synonymen zurückgedrängt werden. Eine sehr angemessene Würdigung finden Azara's Arbeiten in des Prinzen von Neuwied trefflichen ,,Beiträgen zur Naturgeschichte Brasitiens". Etwa 150 Vögelarten Paraguay's glaubt derselbe für mit von ihm beobachteten gleichartig halten zu dürfen, und häufig findet er Gelegenheit des spanischen Naturforschers Bemerkungen über Lebensweise mit seinen eigenen zusammenzustellen und zu bestätigen."

1807. HUMBOLDT, A. V. Über die Chinawälder in Südamerika. < *Mag. Gesell. Naturf. Freunde zu Berlin*, i, 1807, pp. 57–68.

Behandelt Vögel, p. 59.

1808. MOLINA, G. I. The | Geographical, | Natural and Civil History | of | Chili. | — | By Abbe Don J. Ignatius Molina. | — | Illustrated by a half-sheet map of the country. | — | With notes | from the Spanish and French versions, | and | an appendix, | containing copious extracts from the Araucana | of Don Alonzo de Ercilla. | — | Translated from the original Italian, | by an American gentleman [A. Alsop]. | — | In two volumes. | Vol. I [II]. | — | Middletown, (Conn[ecticut, U. S.].) | Printed for I. Riley, | — | 1808. 2 vols. 8vo size, 4to by sigs., 4 ll. to a sig. Vol. I, 4 p. ll., pp. i–xii, 1–271, 1 l., map. Vol. II, 1 p. l., pp. i–viii, 1 blank l., 1–306, 1 unpaged p., 1 blank l.; (Appendix), pp. i–iv, 5–68.

See the original edition, 1782. In this, the earliest English version I know of, the bird-matter is in vol. I, chap. IV, sect. V, pp. 162–188, with the original Latin diagnoses at pp. 240–242; see also p. 268. *Phytotoma* here becomes "Phitotoma". As in some other versions, the footnotes of the original are here dispensed with, and the technical names are inserted in the text in parentheses.

"The author of the present work, Don Juan Ignatius [*i. e.* Giovanni Ignazio] Molina, was a native of Chili, distinguished for his literary acquirements, and particularly his knowledge of natural history, large collections in which he had made during his residence in that country. On the dissolution of the celebrated order of the Jesuits, of which he was a member, he shared the general fate of that community, in being expelled from the territories of Spain, and was at the same time deprived not only of his collections in natural history, but also of his manuscripts. The most important of the latter relative to Chili, he had, however, the good fortune to regain by accident some time after his residence in Bologna, in Italy, whither he had gone on his arrival in Europe. Furnished with these materials, he applied himself to writing the History of that country, which was published at two different periods; the first part, comprising the Natural History, in the year 1787 [qu. 1782], and the second, for reasons mentioned in his preface, not until some years after."

1809. AZARA, F. DE. Voyages | dans | l'Amérique Méridionale, | par Don Félix de Azara, | Commissaire et Commandant des limites Espagnoles de Paraguay | depuis 1781 jusqu'en 1801; | Contenant la description géographique, politique et civile du | Paraguay et de la rivière de La Plata; l'histoire de la découverte et de la conquête de ces contrées; des détails nombreux sur leur histoire naturelle, et sur les peuples sauvages | qui les habitent; le récit des moyens employés par les | Jésuites pour assujétir et civiliser les indigènes, etc. | Publiés d'après les manuscrits de l'auteur, | avec une notice sur sa vie et ses écrits, | Par C. A. Walckenaer; | enrichis de notes par G. Cuvier, | Secrétaire perpétuel de la classe des Sciences Physiques de l'Institut, etc. | Suivis de l'histoire naturelle des Oiseaux du Paraguay et de La Plata, par | le même auteur, traduite, d'après l'original espagnol, et augmentée | d'un grand nombre de notes, par M. Sonnini; | Accompagnés d'un atlas de vingt-cinq planches. | Tome Premier [–Quatrième]. | — | Paris, | Dentu, Imprimeur-Libraire, | Rue du Pont-de-Lodi, nº 3. | 1809. 4 vols. small 8vo, and large 4to atlas. Vols. I, II, no ornithology. Vol. III, 2 p. ll., pp. i, ii, 1–479. Vol. IV, 2 p. ll., pp. 1–380. Atlas, 4to, same date and imprint, titled Voyages | dans | L'Amérique méridionale, | par Don Félix de Azara. | — | Collection de planches. 2 ll. of text, pll. xxv, of which xxii–xxv are of birds.

In this French version by Sonnini, much better known than the original, Azara's Apuntamientos para la historia natural de los Páxaros de Paragüay, etc., are contained in the third and fourth volumes; four birds are figured in the atlas. Sonnini's translation is considered "meritorious", but has its short-comings. See especially Hartlaub's *Systematischer Index*, 1847.

1809. MOLINA, G. I. The | Geographical, | Natural, and Civil | History of Chili. | Translated from the original Italian of | the Abbe Don J. Ignatius Molina. | — | To which are added, | Notes | from the Spanish and French versions, | and | two Appendixes, | by the English editor; | [etc., 5 lines.] | — | In two volumes. | — | Vol. I [II]. | — | [London:] printed for Longman, Hurst, Rees, and Orme. | Paternoster-row. | — | 1809. 2 vols. 8vo. Vol. I, pp. i–xx, 1–321+1½ ll. advt., map. Vol. II, pp. i–xii, 1–385+1½ ll. advt.

See the original edition, 1782. This is apparently reprinted from the Middletown (Conn.) ed. of 1808, *q. v.*, with which it is substantially identical in the ornithological matter. Birds: Vol. I, Chap. IV, sect. V, pp. 191–222, and pp. 282–284; see also p. 317. But the English editor (as I may state for others than ornithologists) has added occasional notes over the initials E. E., and subjoined a further elucidation of the language of the Araucanos, from Falkner's Patagonia, besides adding the two appendixes mentioned in the title.

1810. LEDRU, A.-P. Voyage aux Iles de Ténériffe, la Trinité, Saint Thomas, Sainte-Croix et Porto-Ricco, . . . &c. Par Andre-Pierre Ledru . . . &c. Paris. 1810. 2 vols. 16mo. [See complete title beyond, ADDENDA.]

Not seen: cited from *Ibis*, 1859, pp. 374, 375. M. Ledru was one of the naturalists (with Maugé) of the expedition commanded by Captain Baudin in 1796–98. His work contains (vol. II, pp. 36 et seq.) an "Essai sur l'histoire naturelle des îles danoises", by M. Sonnini, in which ornithology is represented by a variety of matter, some of it wild.

1810. MOLINA, G. I. Saggio | sulla Storia Naturale del Chili | di | Gio: Ignazio Molina | Seconda Edizione | accresciuta e arricchita di una nuova carta geografica | e del ritratto dell' autore. | ,, Hic vir assiduum, atque alienis mensibus aestas, | ,, Bis gravidae pecudes, bis pomis utilis arbos . . . . | ,, Haec eadem argenti rivos, aerisque metalla | ,, Ostendit venis, atque auro plurima fluxit | Virg. Georg. lib. 2. | Bologna 1810. | — | Tipografia de' fratelli Masi e comp. | 1 vol. Large 4to. Title, backed blank, frontisp. (portrait of Molina), dedication 2 ll., preface pp.)(i)(–)(v)(, p. vi blank; pp.)(1)(–)(306)(; 1 l. errata; map.

The second *Italian* edition (original edition, 1782); but there had meanwhile been sundry others, in Spanish, French, German, and English, *qq. vv.* Respecting the present, the author says in the preface:—"Il Saggio sulla Storia naturale del Regno del Chili venuto alla luce nell' anno 1782 non era altro che un succinto Compendio delle Osservazioni da me fatte cerca gli Esseri appartenenti ai tre Regni della Natura, che si ritrovano in quel Paese. . . . Tutti le Nazioni colte dell' Europa lo vellero tradotto nelle loro lingue. L'edizione originale fu ben presto smaltita. Parecchi dilettanti di storia naturale, che non potevano più provvedersene, s'accordarono a farne una ristampa, e mi significarono il desiderio che avevan di arricchirla di un' appendice, so io fossi in grado di somministrar loro i materiali necessarj."

1810. Molina, G. I.—Continued.

In this late edition, the ornithology occupies § xiii–§ xvii, pp. 197–226. It is entirely remodelled, largely rewritten, and much augmented. While all the earlier versions of "Molina" are substantially the same as the original of 1782, the present is therefore quite a different thing, and should be gingerly touched, by any one unfamiliar with the original, in any matter relating to nomenclature, or authority for species. The Latin diagnoses and the footnotes of the original have all disappeared, and with them has gone Molina as an original authority; he is here like another person or editor compiling from and enlarging upon "Molina". The following names occur here:—

Anas regia "Frez.", *A. picta* "Lath.", *A. coscoroba* "Diz. Chil.", *A. hybris* "Diz. Chil.", p. 198. *A. dispar*, *A. magellanica* "Lath.", *A. melancorypha* "Bougainv.", *Pelecanus thagus* "Diz. Chil.", p. 199. *P. carunculatus* "Lath.", *P. cristatus* "Lath.", p. 200. *P. magellanicus* "Lath.", *Aptenodytes maxima*, *patagonica* "Lath.", p. 201. *A. cyanocephala*, *papua* "Lath.", *A. saltatrix*, *chrysocome* "Lath.", *A. præcincta*, *magellanica* "Lath.", *A. chiloensis* "Diz. Chil.", *A. chilensis* "Lath.", p. 202. *Phoenicopterus chilensis* "Oval. Stor.", p. 203. *Tantalus pillus* "Diz. Chil.", *Ardea cyanocephala*, p. 204. *A. erythrocephala* "Vid.", *A. galatea*, *A. alba*, *ligthula* "Diz. Chil.", *Parra chilensis* "Diz. Chil. Oval.", p. 205. *Fringilla barbata* "Diz. Chil. Ov.", p. 209. *F. diuca* "Diz. Chil.", p. 210. *Turdus thilius* "Diz. Chil.", *T. curæus* "Diz. Chil.", p. 211. *T. militaris* "Lath.", p. 212. *T. thenca* "Diz. Chil.", p. 213. *Phytotoma rara* "gen. nov. Vid." [!], p. 214. *Picus pileatus* [!], *P. lineatus*, *al. lignarius*, *P. pitius*, p. 215. *Psittacus cyanolysios*, *P. choraeus*, p. 216. *P. jahuilma*, *Columba turtur* [!], *C. melanoptera*, *C. passerina*, p. 217. *Tetrao perdix* [!], *Strix cunicularia*, p. 218. *Otis chilensis* "Diz. Chil.", p. 219. *Struthio rhea* "Linn. Diz. Chil. Oval.", *Vultur iota* "Diz. Chil.", p. 220. *Falco tharus* "Diz. Chil.", p. 221. *F. calquin* "Diz. Chil.", *Vultur gryphus* "Linn.", p. 223.

1814–26. Lichtenstein, H. Die Werke von Marcgrave und Piso über die Naturgeschichte Brasiliens u. s. w. < *Abhandl. Berlin. Akad.* (Phys. Kl.), $18^{14}/_{15}$, pp. 201–222; $18^{16}/_{17}$, pp. 155–178; $18^{20}/_{21}$, pp. 237–257, 267–288; 1826, pp. 49–65.

It appears from Carus and Engelmann, that Lichtenstein's commentary on Piso and Marcgrave originally appeared in instalments in *Abhandl. Berlin. Akad.* during several years; but I cannot now lay hands on the *Abhandlungen*. I give beyond, 1820 and 1824, titles taken from *Isis*, of what I suppose to be substantially the same thing, as far as the birds are concerned; the whole commentary, as above cited, relating also to other animals.

1819. Anon. [Notice of Spix and Martius's Brazilian Birds.] < *Isis*, Jahrg. iii, 1819, pp. 1346–1350.

1820. Lichtenstein, H. Marcgrave's und Piso's Berichte über die Brasilischen Thiere, erläutert aus den wiederaufgefundenen Original-Abbildungen. < *Oken's Isis*, Jahrg. iv, 1820, *Litter. Anzeig.*, pp. 635–652. (Vorgelesen in der Berliner Akademie 17. April 1817.)

An important commentary on the work, identifying the names and descriptions of these authors, as far as the birds are concerned.—See preceding title; also, 1824, same author.

1820. Maximilian, Prinz zu Wied-Neuwied. Reise des Prinzen Maximilian von Wied-Neuwied. Gedrängter Auszug aus dem ersten Theile desselben. Frankfurth bei Brönner. 4. < *Oken's Isis*, Jahrg. iv, 1820, *Litter. Anzeig.*, pp. 809–832, 965–990.

1820. Schreibers, C. v. Nachrichten von den kaiserl. österreichischen Naturforschern in Brasilien und den Resultaten ihrer Betriebsamkeit, vom Hof-Naturaliencabinets-Direktor C. v. Schreibers. Brünn bey Tratzler 1820. 8. 191 nebst 1 Abb. v. Rio Janeiro und einem Plan der Stadt. < *Oken's Isis*, Jahrg. iv, 1820, pp. 289–309.

Vergleiche 1823, Schreibers, C. v.

1820–21. Maximilian, Prinz zu Wied-Neuwied. Reise | nach | Brasilien | in den Jahren 1815 bis 1817 | von Maximilian | Prinz zu Wied-Neuwied. | — | Mit zwei und zwanzig Kupfern, | neunzehn Vignetten und drei Karten. | — | Erster [zweyter] Band. | — | Frankfurt a. M. 1820 [1821]. | Gedruckt und verlegt bei Heinrich Ludwig Brönner. 2 vols. Gr. 4to. Vol. I, 1820, pp. xxxvi, 380, 3 ll. Vol. II, 1821, pp. xviii, 346.

1821–22. Maximilien, Prince de Wied-Neuwied. Voyage | au Brésil, | dans les années 1815, 1816 et 1817, | par S. A. S. Maximilien, | Prince de Wied-Neuwied; | traduit de l'Allemand | par J. B. B. Eyriès. | Ouvrage enrichi d'un

1821-22. Maximilien, Prince de Wied-Neuwied.—Continued.
superbe atlas, composé de 41 planches | gravées en taille-douce, et de trois cartes. | — | Tome Premier [Second, Troisième]. | — | Paris, | Arthur Bertrand, Libraire, | Rue Hautefeuille, nº 23. | 1821 [1821, 1822]. | H. Baillière, 219, Regent street, London. 3 vols. 8vo. Vol. I, 1821, pp. xvj, 399. Vol. II, 1821, 2 p. ll., pp. iii, 400. Vol. III, 1822, 2 p. ll., pp. iii, 384, 3 maps.

1822. Dobrizhoffer, M. An | Account | of | the Abipones, | An Equestrian People | of | Paraguay. | — | From the Latin of Martin Dobrizhoffer, | eighteen years a missionary in that country. | — | In three volumes. | Vol. I[-III]. | — | London: | John Murray, Albemarle street. | 1822. 3 vols. 8vo.

Orig. ed. Latin, Vienna, 1784; ed. alt. Germ., ibid., 1784.—This English translation is anonymous, said to be by Sara Coleridge. Vol. I contains, pp. 308-333, accounts of sundry birds of Paraguay, of no special consequence.

1822. Maximilian, Prinz zu Wied-Neuwied. Reise nach Brasilien in den Jahren 1815-17, von Maximilian, Prinz zu Wied-Neuwied. 2ter Band. Frankfurt a. M. bei Brönner, 1821. 4. 345. mit 8 Kupf. in 4. und 8 in Fol. nebst 1 Charte. < *Oken's Isis*, Jahrg. vi, 1822, *Litter. Anzeig.*, pp. 249-262, 265-280.

1822. Saint-Hilaire, Auguste de. Aperçu d'un Voyage dans l'intérieur du Brésil, La province Cisplatine et les Missions dites du Paraguay. < *Mém. du Mus. d'Hist. Nat.*, ix, 1822, pp. 307-380.

Note sur la *Cariama*, p. 323; *Oriolus aurantius* Valenc., p. 324.

1822. Thunberg, C. P. Piprae novae species descriptae. < *Mém de l'Acad. St.-Pétersb. for* 1817-1818, viii, 1822, pp. 282-287, pll. vii, viii.

PP. caudata (pl. 7, f. 1), forficata (pl. 7, f. 2), lineata (pl. 8, f. 1), cyanea (pl. 8, f. 2), viridis (pl. 8, f. 3), virens, pusilla (pl. 8, f. 4), fasciata, frontalis, cephaleucos, flavogaster, brunnea, atra—nec omnes Pipræ generis sunt.

1823. Anon. Brasilianisches Museum in Wien. < *Oken's Isis*, Jahrg. vii, 1823, Beylage No. 9.

Remarks upon the specimens contained, with notes on the birds *passim*.

1823. Schreibers, C. v. Nachrichten von den kaiserl. österreichischen Naturforschern in Brasilien und den Resultaten ihrer Betriebsamkeit. < *Oken's Isis*, Jahrg. vii, 1823, pp. 714-724.

Aus Amtsrelationen der k. k. Gesandschaft und aus den Berichten der Naturforscher an Herrn v. Schreibers, und nach Untersuchung der eingesendeten Gegenstände u. s. w. (Brünn, bey Tratzler, Hft. 2, 1822, 8°, SS. 114.)—Unter den Vögeln, von 61 verschiedenen Arten, befinden sich 2 Geyer, 23 Papageyen, 69 Singvögel, 25 Tauben, 2 Hühner u. s. w.—Vergl. 1820, Schreibers, C. v.

1823. Schreibers, C. v. Nachrichten von den kayserl. österreichischen Naturforschern in Brasilien den Resultaten ihrer Betriebsamkeit. < *Oken's Isis*, Jahrg. vii, 1823, pp. 1042-1065.

Aus Amtsrelationen der k. k. Gesandschaft und aus den Berichten der Naturforscher. Von Hrn. von Schreibers und nach Untersuchung der eingesendeten Gegenstände u. s. w. (Brünn, bey Tratzler, Heft 2, 1822, 8°, SS. 114.)—Vögel, pp. 1061-1063.—Vergl. 1820, Schreibers, C. v.

1823-31. Spix, J. B. v., *and* Martius, C. F. E. Reise in Brasilien auf Befehl Sr. Majestät Maximilian Joseph I, Königs von Baiern in den Jahren 1817 bis 1820 gemacht und beschrieben von Dr. Joh. Bapt. von Spix, und Dr. Carl. Frieder. Phil. von Martius. München, 1823[-1831]. 3 Thle. 4to.

[See beyond, Addenda.]

1824. Desm . . st [Desmarest, A. G.] Abbildungen zur Naturgeschichte Brasiliens . . . par le prince Maximilien . . . < *Féruss. Bull.*, 2ᵉ sect., ii, 1824, p. 191.

1824. F[érussac, — de ?] Abbildungen zur Naturgeschichte Brasiliens. . . . . < *Féruss. Bull.*, 2ᵉ sect., iii, 1824, pp. 221, 222.

1824. Lichtenstein, H. Die Werke von Marcgrave und Piso, über die Naturgeschichte Brasiliens, erläutert aus den wieder aufgefundenen Original-Abbildungen von Lichtenstein. < *Oken's Isis*, Jahrg. viii, 1824, *Litter. Anzeig.*, pp. 57-74.

Aus d. *Abhandl. Berl. Akad.*—Vergl. auch 1820, Lichtenstein, H.

1824–25. Spix, J. B. v. "Avium species novae, quas in itinere per Brasiliam annis 1817–20 collegit et descripsit. 2 vols. Folio. Monachii, 1824–25. Vol. I, 1824, pp. 90, pll. 104. Vol. II, 1825, pp. 85, pll. 118."

Not seen,—as I specially regret to say in this case.

1825. Anon. Beyträge zur Nat. Gesch. v. Brasilien von M. Prinzen zu Wied. Weimar, Landes-Industrie-Comptoir. 1825, 8. B. I. 612 mit 3 Kpfrt. <*Oken's Isis*, Jahrg. ix, 1825, pp. 1335–1340.

Vögel, pp. 1337, 1338.

1825. Bonaparte, C. [L.] Descriptions of ten species of South American Birds. <*Journ. Acad. Nat. Sci. Phila.*, iv, 1825, pp. 370–387.

Monasa fusca Bp., *Picus rubricollis* var.?, *Dendrocolaptes angustirostris, Fringilla flaveola, Tanagra flava, Muscicapa violenta* Bp., *Muscicapa taenioptera* Bp., *Muscicapa pullata* Bp., *Caprimulgus semitorquatus, Rallus nigricans.*

1825. Bonaparte, C. [L.] Notes to the paper entitled Descriptions of ten species of South American Birds. <*Journ. Acad. Nat. Sci. Phila.*, v, 1825, pp. 137–140.

Picus rubricollis and 3 spp. of *Rallus. R. melanurus* Bp., p. 139.—Also separate, pp. 4.

1825. Lesson, [R.] P. Remarques sur quelques Oiseaux de la province de Rio-de-Janeiro et des environs de Monte-Vidéo; . . . par MM. Quoy et Gaimard. . . . <*Féruss. Bull.*, 2e sect., vi, 1825, p. 93.

Extrait des *Annales des Sci. Nat.*, t. iv, Avril 1825, pp. 474–481, *q. v.*

1825. Lesson, R. P. Description de dix espèces d'oiseaux de l'Amérique méridionale . . . ; par Ch. Bonaparte. . . . <*Féruss. Bull.*, 2e sect., vi, 1825, pp. 412, 413.

Journ. Phila. Acad., iv, No. 12, Mai 1825, pp. 370–387, *q. v.*

1825. Quoy, J. R. C., *and* Gaimard, J. P. Remarques sur quelques Oiseaux de la province de Rio-de-Janeiro et des environs de Montévidéo; sur leurs mœurs et leur distribution géographique. <*Ann. des Sci. Nat.*, iv, 1825, pp. 474–481.

1825. Spix, J. B. v., *and* Martius, C. F. P. Musical Thrush [?] of Brazil. <*Edinb. Philos. Journ.*, xii, 1825, pp. 186, 187.

From 'Travels in Brazil'.

1825. Such, G. Descriptions of some hitherto uncharacterized Brazilian Birds. <*Zool. Journ.*, ii, 1825, pp. 110–117, pl. 4.

Galbula ceycoides, p. 112; *Gubernetes* (g. n., p. 114) *cunninghami*, p. 114, pl. 4; *Dendrocolaptes crassirostris, D. fortirostris*, p. 115; *Ardea fasciata*, p. 117.

1825–33. Maximilian, Prinz zu Wied-Neuwied. Beiträge zur Naturgeschichte von Brasilien, . . . Weimar. 1825–33. 4 vols. 8vo.

This is the date of the whole work: see vols. III, IV, cited beyond, 1830–33.

1826. Garnot, P. Remarques sur la Zoologie des îles Malouines, faites pendant le Voyage autour du monde de la Corvette la Coquille, exécuté en 1822, 1823, 1824 et 1825. <*Ann. des Sci. Nat.*, vii, 1826, pp. 39–59.

Sylvia macloviana, p. 44; *Certhia antarctica*, p. 45; *Charadrius pyrocephalus, Tringa urvillii*, p. 46; *Haematopus leucopodus*, p. 47; *Podiceps occipitalis*, p. 50; *Procellaria lessonii*, p. 54; *Anser antarcticus*, p. 58, spp. nn.—Observations sur le *Chionis.*

1826. Less[on, R. P.] Description de quelques oiseaux du Brésil jusqu'à présent mal caractérisés, par George Such. . . . <*Féruss. Bull.*, 2e sect., vii, 1826, pp. 246, 247.

Zool. Journ., ii, No. 5, 1825, pp. 110–117.

1826–27. Scouler, J. Account of a Voyage to Madeira, Brazil, Juan Fernandez, and the Gallapagos Islands, performed in 1824 and 1825, with a view of examining their Natural History, &c. <*Edinb. Journ. Sci.*, v, 1826, pp. 195–214; vi, 1827, pp. 51–73, 228–236.

Containing cursory remarks on birds, especially *Procellariidæ.*

1827. [Editorial.] [Note on Mr. W. S. MacLeay's "Remarks on the comparative anatomy of certain Birds of Cuba" (in Trans. Linn. Soc.?).] <*Philos. Mag.*, i, 1827, p. 65.

1827. Garnot, P. Notice respecting the Zoology of the Falkland Islands. <*Edinb. Journ. Sci.*, vi, 1827, pp. 321–325.

Translated from *Ann. Sc. Nat.*, vii, 1826, pp. 39–59. A summary of the ornithological features occupies most of the article.

1827. L[uroth], S. G. Remarques sur la zoologie des îles Malouines, . . . ; par M. Garnot. . . . < *Féruss. Bull.*, 2^e sect., x, 1827, pp. 127–129.

Ann. des Sc. Nat., Janv. 1826, pp. 39–59.

1827–28. King, P. P. Extracts from a letter addressed by Capt. Philip Parker King, R. N., F. R. S. and L. S., to N. A. Vigors, Esq., on the Animals of the Straits of Magellan. < *Zool. Journ.*, iii, 1827, pp. 422–432; iv, 1828, pp. 91–105, pl. suppl. 29.

I. *Haliæetus erythronotus*, p. 424; *Strix rufipes*, p. 426; *S. nana*, p. 427; *Sylvia dorsalis*, p. 428; *S. obscura*, p. 429; *Picus magellanicus*, p. 430; *Mellisuga kingii* Vig., p. 432, spp. nn.—Annotations throughout by Mr. Vigors. II. *Columba meridionalis*, p. 92; *Scolopax magellanicus*, p. 93; *Rhynchœa occidentalis*, *Rallus setosus*, p. 94; *Rallus antarcticus*, *Fulica chloropoides*, p. 95; *F. gallinuloides*, *Charadrius rubecola*, p. 96; *Anas rafflesii*, p. 97, pl. suppl. 29; *Anas specularis*, *A. specularioides*, p. 98; *A. creccoides*, p. 99; *Oidemia patachonica*, p. 100; *Podiceps, leucopterus*, *Phalacrocorax niger*, p. 101; *P. atriceps*, p. 102; *P. cirriger*, *Larus haematorhynchus*, p. 103, spp. nn.

1828. Anon. Avium species novae, quas in itinere per Brasiliam annis 1817–1820 collegit et descripsit Dr. J. B. de Spix. Tabulæ lithographicæ 118 a M. M. Schmid sculptæ. Monachii 1825. 4. maj. < *Oken's Isis*, Bd. xxi, 1828, pp. 88–92.

Inhaltsverzeichniss der Tafeln, Vögel, pp. 89–92.

1828. Lesson, [R. P.] Extrait d'une lettre adressée à M. Vigors par le capitaine King, sur les productions animales du détroit de Magellan. . . . < *Féruss. Bull.*, 2^e sect., xv, 1828, pp. 150, 151.

Zool. Journ., No. 11, 1827, pp. 422–432, and No. 13, 1828, pp. 91–105.

1828. Lesson, [R. P.] Notes à ajouter au mémoire intitulé: Description de dix espèces d'Oiseaux américains; par Charles Bonaparte. . . . < *Féruss. Bull.*, 2^e sect., xiii, 1828, pp. 240, 241.

Journ. Phila. Acad., v, pp. 137–140: voyez *Féruss. Bull.*, vi, 1825, pp. 412, 413.

1828. Vigors, N. A. On some species of Birds from Cuba. < *Zool. Journ.*, iii, 1828, pp. 432–448.

Treats of 45 spp. *Accipiter fringilloides*, p. 434; *Falco sparverioides*, p. 436; *Pyrrhula collaris*, p. 440; *Colaptes fernandinæ*, p. 445; *Columba inornata*, p. 446, spp. nn.—The above is a sub-title of Art. XLVI, "Sketches in Ornithology," etc.

1829. Anon. Notices Zoologiques communiquées par le Dr. Poeppig, pendant son voyage dans le Chili. . . . < *Féruss. Bull.*, 2^e sect., xix, 1829, pp. 95–104.

Extrait de *Fror. Notizen*, No. 529, juillet 1829.

1829. Anon. Abbildungen zur Naturgeschichte Brasiliens, herausgegeben von Maximilian, Prinzen von Wied. Weimar, Industrie-Comptoir. Lief. xii. 28. Fol. ill. < *Oken's Isis*, Bd. xxii, 1829, pp. 74, 75.

1829. Becklimichew, A. Notice sur deux nouvelles espèces d'oiseaux du Brésil. < *Nouv. Mém. Soc. Imp. Nat. de Moscou*, i, 1829, pp. 375–390.

Not seen: title from *Roy. Soc. Cat.*

1829. Férussac, — de. Voyage de M. Alcide d'Orbigny dans le sud de l'Amérique méridionale. < *Féruss. Bull.*, 2^e sect., xix, 1829, pp. 212–222.

1830. [Fischer, G.] [Note sur les Oiseaux envoyés par M. Coffrane de Bahia en Amérique.] < *Bull. Soc. Imp. Nat. Moscou*, ii, 1829, p. 10.

1830. King, P. P. Ueber die Thiere an der Magellans-Strasse. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1181–1183, 1234–1236.

Aus dem *Zool. Jour.*, 1827, pp. 422–432, und 1828, pp. 91–105. Vergl. 1827–28, King, P. P.

1830. King, P. P. [Characters of New Genera and Species of Birds from the Straits of Magellan.] < *P. Z. S.*, i, 1830, pp. 14–16, 29, 30.

Turdus magellenicus, *Psittacara leptorhyncha*, *Picus melanocephalus*, p. 14; *Hylactes* (n. g.) *tarnii*, *Columba fitzroyii*, *Cygnus anatoïdes*, *Anser inornatus*, *Micropterus patachonicus*, *Anas chiloensis*, *A. fretensis*, p. 15; *Synallaxis anthoides*, *Dendrocolaptes albogularis*, *Trochilus fernandensis*, *T. stokesii*, *Phalacrocorax imperialis*, *P. sarmientonus*, *P. erythrops*, p. 30.

1830. MacLeay, W. S. Bemerkungen über die vergleichende Anatomie verschiedener Vögel aus Cuba, mit Rücksicht auf ihren Platz im System. < *Oken's Isis*, Bd. xxiii, 1830, pp. 895–898.

Auszug aus den „ *Trans. Linn. Soc. Lond.*, xvi, p. 149, tb. 1–15" (?).

183–? D'ORBIGNY, A. Extrait de deux Lettres à M. de Férussac, de Buenos-Ayres le 30 Oct. 1828 et de Rio Negro le 18 Févr. 1829, sur l'Histoire Naturelle de ces Contrées. < *Féruss. Bull.*, xix, p. 212.

Not seen: title from Ag. & Strickl. *Bibl.*

1830. SUCH, G. Einige unbestimmte brasilische Vögel. < *Oken's Isis*, Bd. xxiii, 1830, pp. 843, 844.

Auszug aus dem *Zool. Jour.*, ii, 1825, pp. 110–117, *q. v.*

1830. VIGORS, N. A. Ueber einige Vögel aus Cuba. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1165–1168.

Zool. Journal, No. xi, p. 432.

1830–33. MAXIMILIAN, PRINZ ZU WIED. Beiträge | zur | Naturgeschichte | von | Brasilien, | von | Maximilian, Prinzen zu Wied. | — | III. [IV.] Band. | Erste [Zweite] Abtheilung. [. . . .] | — | Weimar, | [. . .] 1830 [–1833]. 8vo. Vol. III, Erste Abth., 1830, 2 p. ll., pp. 1–636; Zweite Abth., 1831, pp. xii, 637–1278 + 1 l., mit einer Tafel (figg. 1–7). Vol. IV, Erste Abth., 1832, 2 p. ll., pp. 1–442; Zweite Abth., 1833, pp. viii, 443–946, mit 2 Tafeln (figg. 1–10, 1–5).

The secondary title of this work is:—Verzeichniss | der | Amphibien, Säugethiere und Vögel, | welche | auf einer Reise zwischen dem 13ten und dem 23sten | Grade südlicher Breite | im östlichen Brasilien | beobachtet wurden.—As above indicated, Birds occupy the 3d and the 4th Band, each of 2 Abtheilungen; in all, 4 vols., the pagination of the two portions of each Band being continuous. Some 450 spp. or more are systematically treated, the text being chiefly descriptive, but also including general matter, and some little criticism and synonymy. The author's new species appear to have been already described in his 'Reise', or elsewhere, and many of them were figured by Temminck in the Planches Coloriées. The three copper-plates represent some anatomical subjects, bills, and feet.—Whole work, 1825–33.

1831. KING, P. P. [On the distinctive characters of several species of Birds from the Straits of Magellan.] < *Philos. Mag.*, ix, 1831, pp. 226, 227.

Synallaxis anthoïdes, *Dendrocolaptes albo-gularis*, p. 226; *Trochilus fernandensis*, *T. stokesii*, *Phalacrocorax imperialis*, *P. sarmientonus*, *P. erythrops*, p. 227. From *P. Z. S.*, Jan. 25, 1831.

1831. VIGORS, N. A. [Remarks on the exhibition of several new species of birds from the Straits of Magellan.] < *Philos. Mag.*, ix, 1831, pp. 64–66.

From *P. Z. S.*, Dec. 14, 1830. Being those collected by P. P. King, and described from his MSS.

1832. GARNOT, [P.] Ueber die Zoologie der Malwinen zwischen 52 und 53° S. B. und 56—60° W. L., östlich von Patagonien. < *Oken's Isis*, Bd. xxv, 1832, pp. 180–184.

Auszug aus *Annales des Sciences*, t. vii, 1826, p. 39. (Lesson und D'Urville, *Voy. Coquille.*)

1832. MAXIMILIAN, PRINZ ZU WIED. Beyträge zur Naturgeschichte von Brasilien von Maximilian, Prinzen zu Wied. Weimar, Ind. Compt. Bd. 3. Abth. 1. 30. 8. 636; Abth. 2. 31. 637—1278. < *Oken's Isis*, Bd. xxv, 1832, pp. 56–60.

Auszug, SS. 55 u. folg. Vögel, pp. 57–60.

1832. VIGORS, N. A. [Characters of New Species of Birds collected by Mr. Cuming in Chili and Mexico.] < *P. Z. S.*, ii, 1832, pp. 3, 4.

Capito aurifrons, *Xanthornus chrysocarpus*, *Aglaïa chilensis*, p. 3; *Picus aurocapillus*, *Coccothrauste chrysopeplus*, *Ortyx spilogaster*, p. 4.

1834. GEOFFROY ST. HILAIRE, ISID., *and* DE BLAINVILLE, H. M. D. Rapport sur les résultats scientifiques du voyage de M. Alcide D'Orbigny dans l' Amérique du sud, pendant les années 1826, 1827, 1828, 1829, 1830, 1831, 1832 et 1833. < *Nour. Ann. du Mus.*, iii, 1834, pp. 84–115.

Quant aux oiseaux . . . etc., pp. 92 et seq.

1834. GOULD, J. Sur des Oiseaux de l'Amérique Méridionale. < *L'Institut*, ii, 1834, No. 64, p. 252.

Not seen: title from Carus and Engelmann, *Bibl.*

1834. HEARNE, J. [Note on Birds of Hayti.] < *P. Z. S.*, ii, 1834, p. 25.

1834. HEARNE. J. [Letter accompanying a Present of several Living Animals from the Island of Hayti.] < *P. Z. S.*, ii, 1834, p. 110.

1834. King, P. P. Vögel von Magellanstrasse. <*Oken's Isis*, Bd. xxvii, 1834, pp. 818, 819.

Auszug aus *Philos. Mag.*, ix, 1831, pp. 226, 227.

1834. Vigors, N. A. Ueber Kings Vögel von der Magellanstrasse. <*Oken's Isis*, Bd. xxvii, 1834, pp. 815, 816.

Aus *Philos. Mag.*, ix, 1831, pp. 64–66.

1834–41. Swainson, W. Ornithological Drawings: a Selection of Birds of Brazil and Mexico. London. Pub. in seven parts, 1834–41. 8vo. 78 pll.

Not seen: others quote a literally very different title. [See beyond, Addenda.]

1835. Hearne, J. [Notice of a Collection of Bird-skins, 16 spp., formed by him in Hayti.] <*P. Z. S.*, iii, 1835, p. 105.

1835. Vigors, N. A. [Thiere von Cuming von Vigors bestimmt.] <*Oken's Isis*, Bd. xxviii, 1835, pp. 365, 366.

Aus Chili und Mexico. Auszug aus *P. Z. S.*, 1832, pp. 3, 4, *q. v.*

1835–44–47. d'Orbigny, A. Voyage | dans | L'Amérique Méridionale | (le Brésil, la République Orientale de l'Uruguay, la République | Argentine, la Patagonie, la République du Chili, la République de Bolivia, | la République du Pérou), | exécuté pendant les années 1826, 1827, 1828, 1829, 1830, 1831, 1832 et 1833, | par | Alcide d'Orbigny, | Chevalier de l'Ordre royale de la Légion d'Honneur, Officier de la Légion d'Honneur de la République | Bolivienne, Président de la Société Géologique de France et Membre de plusieurs Académies | et Sociétés savantes nationales et étrangères. | Ouvrage dédié au Roi, | et publié sous les auspices de M. le Ministre de l'Instruction publique | (commencé sous le ministère de M. Guizot). | — | Tome Quatrième. | 3.e Partie: Oiseaux. | — | Paris, | chez P. Bertrand, éditeur, | Libraire de la Société géologique de France, | rue Saint-André-des-Arcs, 38. | Strasbourg, | chez V.e Levrault, rue de Juifs, 33. | — | 1835–1844. Very large 4to. 3 p. ll. (titles, each backed blank), pp. i–iij (advts.), pp. 1–395, with col'd folded map.—Also, Atlas Zoologique, being Vol. IX of the series, Oiseaux, 4to, pll. 1–6, 6 bis, 7–66 (= 67), 1847.

The above title is that of Part 3 of Vol. IV, being the Birds, separately paged from the rest of the volume, and furnished with 3 title-pages. The composition of the whole work is: Tomes I, II, and III, Partie 1, Partie Historique. Tome III, Partie 2, Géographie; Partie 3, Géologie. Tome IV, Partie 1, Homme Américain; Partie 2, Mammifères; Partie 3, OISEAUX; Tome V, Partie 1, Reptiles; Partie 2, Poissons; Partie 3, Mollusques; Partie 4, Polypiers; Partie 5, Foraminifères. Tome VI, Partie 1, Crustacés; Partie 2, Insectes. Tome VII, Parties 1 et 2, Cryptogames; Partie 3, Palmiers. Tome VIII, Atlas Historique, Géographique, Géologique, Paléontologique et Botanique. Tome IX, Atlas *Zoologique*, comprenant les Mammifères, les OISEAUX, etc.

The date of the ornithological text is 1833–44, as per title-page; that of the ornithological atlas is ostensibly 1847, but the plates are cited in the text. The Atlas Zoologique forms the IX. and last vol. of the series. It has no text except the title-page, which corresponds closely, but is not identical with that of the text above cited, the author having added more titles after his name, and another change being of course to | — | Tome Neuvième. | Atlas | Zoologique | (Mammifères, Oiseaux, Reptiles, Poissons, Mollusques, Polypiers, Foraminifères, Crustacés et Insectes.) |

The sixty-seven plates of birds of the atlas are as follows:—Pl. 1, f. 1, 2, *Carthartes urubu*, tête et œuf; f. 3, 4, *C. aura*, tête et œuf; f. 5, *Polyborus vulgaris*, œuf. Pl. 2, f. 1, 2, *Phalcobœnus montanus*, ad. et jun.; f. 3, 4, œufs de *Polyborus chimango*. Pl. 3, f. 1 ♂, 2 ♀, *Buteo tricolor*. Pl. 4, f. 1, *Tamnophilus* [sic] *aspersiventer;* f. 2, *T. schistaceus*. Pl. 5, f. 1, *T. fuliginosus* [by error for *schistaceus*]; f. 2, *T. aterrimus*. Pl. 6, f. 1, *T. fresnayanus;* f. 2, *Conopophaga nigro-cincta*. Pl. 6 bis, f. 1, 2, *Myothera* [sic] *analis;* f. 2, *M. nigro-maculatus*. Pl. 7, f. 1–2, *Rhinomya lanceolata;* f. 3, 4, *Megalonix* [sic] *rufo-gularis*. Pl. 8, f. 1, *M. ruficeps;* f. 2, *M. albicollis*. Pl. 9, f. 1, *Turdus fuscater;* f. 2, *T. chiguanaco*. Pl. 10, f. 1, œuf de *T. rufiventris;* f. 2, 2 *a*, *Orpheus calandria;* f. 3, *O. thenca*. Pl. 11, f. 1, *O. dorsalis;* f. 2, *O. patagonicus*. Pl. 12, f. 1; *Donacobius albolineatus;* f. 2, *Sylvia leucoblephora*. Pl. 13, f. 1, *Hylophilus ruficeps;* f. 2, *Dacnis flaviventer* [sic]. Pl. 14, f. 1, 2, *Synallaxis dorso-maculata;* f. 3, 4, *S. maluroïdes*. Pl. 15, f. 1, *S. torquata;* f. 2, *S. bitorquata*. Pl. 16, f. 1, *S. striaticeps;* f. 2, *S. albiceps*. Pl. 17, f. 1, *S. fuliginiceps;* f. 2, *S. humicola*. Pl. 18, f. 1, *Sylvia concolor;* f. 2, *Nemosia sordida*. Pl. 19, f. 1, *Tachyphonus versicolor;* f. 2, *T. capitatus*. Pl. 20, f. 1 ♂, 2 ♀, *T. luctuosus*. Pl. 21, f. 1, *T. flavinucha;* f. 2, 3, *Euphonia serrirostris*. Pl. 22, f. 1, *E. laniirostris;* f. 2, *E.*

1835–44–47. D'ORBIGNY, A.—Continued.

ruficeps; f. 3, œuf de *Embernagra platensis*; f. 4, œuf de *Aglaya* [sic] *episcopus*. Pl. 23, f. 1, *Tanagra montana*; f. 2, *T. cyanocephala*. Pl. 24, f. 1, *T. scrankii* [sic]; f. 2, *T. yeni*. Pl. 25, f. 1, *T. cyanicollis* [sic]; f. 2, *T. igniventris*. Pl. 26, f. 1, *Ramphocelus atro-sericeus*; f. 2, *Pyranga albicollis*. Pl. 27, f. 1, *Embernagra torquata*; f. 2, *E. rufinucha*. Pl. 28, f. 1, *Saltator rufiventris*; f. 2, *S. similis*; f. 3, œuf de *S. aurantiirostris*; f. 4, œuf de *S. cœrulescens*. Pl. 29, f. 1, *Phylotoma rutila*; f. 2, *P. angustirostris*. Pl. 30, f. 1, *Pipra fasciata*; f. 2, *Ampelis viridis*. Pl. 31, f. 1, *A. rubro-cristata*; f. 2, 3, 4, *Pachyrhynchus marginatus*. Pl. 32, f. 1, 2, *Tyrannus tuberculifer*; f. 3, 4, *T. rufiventris*. Pl. 33, f. 1, 2, *Todirostrum ecaudatum*; f. 3, 4, *T. margaritaceiventer* [sic]. Pl. 34, f. 1, 2, *Muscipeta cinnamomea* [=*vieillotii* of the text, p. 321]; f. 3, 4, *Setophaga brunneiceps*. Pl. 35, f. 1, *S. verticalis*; f. 2, *Muscicapa striaticollis*. Pl. 36, f. 1, *Alecturus* [=*Arundinicola* of text, p. 335] *flaviventris*; f. 2, *Culicivora* [=*Setophaga* of the text, p. 330] *budytoides*. Pl. 37, f. 1, *C. reguloides*; f. 2, *Fluvicola rufipectoralis*. Pl. 38, f. 1, *F. leucophrys*; f. 2, *F. œnanthoides*. Pl. 39, f. 1, *Muscigralla brevicauca* [sic]; f. 2, *Pepoaza variegata*; f. 3, œuf de *Tyrannus sulphuratus*; f. 4, œuf de *Pepoaza polyglotta*. Pl. 40, f. 1, *Muscisaxicola mentalis*; f. 2, *M. rufivertex*. Pl. 41, f. 1, *M. striaticeps*; f. 2, *M. maculirostris*. Pl. 42, f. 1, *Cypselus montivagus*; f. 2, *C. andecolus*; f. 3, œuf de *Caprimulgus nacunda*. Pl. 43, f. 1, *Certhilauda cunicularia*; f. 2, *C. tenuirostris*; f. 3, œuf de *Passerina flava*; f. 4, œuf de *P. nigriceps*. Pl. 44, f. 1, *Certhilauda maritima*; f. 2, *Emberiza luteocephala*; f. 3, œuf de *Tyrannus savanha* [sic]; f. 4, œuf de *Fluvicola icterophrys*. Pl. 45, f. 1, *Emberiza hypochondria*; f. 2, *E. carbonaria*; f. 3, œuf de *Muscicapa icterophrys*; f. 4, œuf de *Loxia cucultata* [sic]. Pl. 46, f. 1, *Emberiza speculifera*; f. 2, *E. fulviceps*. Pl. 47, f. 1, *Emberiza griseo-cristata*; f. 2, *E. atriceps*; f. 3, œuf de l'*E. matutina*; f. 4, œuf de l'*E. gubernatrix*. Pl. 48, f. 1, *Linaria analis*; f. 2, *Carduelis atratus*; f. 3, œuf de *C. tristis*; f. 4, œuf de *Icterus virescens*. Pl. 49, f. 1♂ 2♀, *Pitylus aureoventris*; f. 3, œuf de *Tyrannus sulphuratus*; f. 4, œuf de *Cassicus solitarius*. Pl. 50, f. 1, *Pyrrhula bicolor*; f. 2, *P. glauco-cœrulea*; f. 3, œuf de *Icterus pyrrhopterus*; f. 4, œuf de *Fringilla cucullata*. Pl. 51, f. 1, *Cassicus yuracares*; f. 2, *C. atrovirens*; f. 3, œuf de *Tyrannus melancholicus*; f. 4, œuf de *Pepoaza rixosa*. Pl. 52, f. 1, *Cassicus chrysonotus*; f. 2, 3, *Icterus maxillaris*; f. 4, œuf de *I. brevirostris*; f. 5, œuf de *I. flavus*. Pl. 53, f. 1, *Garrulus viridicyanus* [sic]; f. 2, *Dendrocolaptes procurvus* [=*D. lafresnayanus* in text]; f. 3, œuf de *Garrulus chrysops*; f. 4, œuf de *G. cyanomelas*. Pl. 54, f. 1, *Dendrocolaptes atrirostris*; f. 2, *Anabates squammiger*; f. 3, œuf de *Tyrannus melancholicus*; f. 4, œuf de *Saltator cœrulescens*. Pl. 55, f. 1, *Anumbius unirufus*; f. 2, nid de *Furnarius rufus*; f. 3, *Anabates gutturalis*. Pl. 56, f. 1, *Uppucerthia montana*; f. 2, *U. andœcola*; f. 3, œuf de *Furnarius rufus*; f. 4, œuf de *Anumbius striaticeps*. Pl. 57, f. 1, *Uppucerthia vulgaris*; f. 2, *U. nigro-fumosa*; f. 3, œuf de *Fluvicola bicolor*; f. 4, œuf de *Pepoaza polyglotta*. Pl. 58, f. 1, 2, *Serrirostrum carbonarium*; f. 3, *S. sittoides*. Pl. 59, f. 1, *Conirostrum cinereum*; f. 2, *Orthorhynchus smaragdinicollis*. Pl. 60, f. 1, *O. pamela*; f. 2, *O. amethysticollis*. Pl. 61, f. 1, *O. estella*; f. 2, *O. adela*. Pl. 62, *Colaptes rupicola*; f. 2, *Picus cactorum*. Pl. 63, f. 1, *P. atriventris*; f. 2, *P. canicapillus*. Pl. 64, f. 1, *P. puncticeps*; f. 2, *Picumnus albosquamatus*. Pl. 65, f. 1, *P. fumigatus*; f. 2, *P. nigriceps*. Pl. 66, f. 1, *Trogon antisianus*; f. 2, *Aulacorhynchus cœruleicinctus*.

This treatise with its many beautiful plates takes a conspicuous place among the few great works on South American ornithology, and d'Orbigny is to be named with such leaders as Azara and Molina of earlier times, Lafresnaye, Hartlaub, Tschudi, and the Prinz von Wied of his own period, and Burmeister, Pelzeln, Cabanis, Sclater, Salvin, Lawrence, and others, who have subsequently made the history of South American ornithology what it is. It is a comprehensive systematic treatise on some three or four hundred species, introduced and interspersed with general considerations of the avifauna of South America and the classification and geographical distribution of the birds, treating the families, genera, and species in detail—the latter with synonymy, description, and critical and field-notes. A colored map of the comparative zones of latitude and altitude illustrates the geographical distribution of the avifauna. It is an expensive work, not generally accessible in its entirety; but the ornithological portion is found separate, with or without the atlas.

The new species discovered on this Expedition appear to have been earlier described by the author and the Baron de Lafresnaye, in Guérin-Méneville's *Magasin de Zoologie*, or elsewhere. The following may be here new, being those for which no earlier reference is given:—*Thamnophilus schistaceus*, p. 170; *Myrmothera menetriesii*, p. 184; *Thryothorus modulator*, p. 230; *Synallaxis maluroides*, *S. troglodytoides*, p. 238; *S. maximiliani*, p. 247; *S. patagonica*, p. 249; genus *Anumbius*, p. 251; *Embernagra olivascens*, p. 285; *Saltator azarae*, p. 287; *Tyrannus rufescens*, p. 308; *Todirostrum ecaudatum*, p. 316; *Muscipeta guillemini*, p. 319; *M. vieillotii*, p. 321; *M. ralloides*, p. 322; genus *Muscicapara*, p. 325; *M. gaimardi*, p. 326; *M. boliviana*, p. 328; genus *Arundinicola*, p. 335; genus *Suiriri* [! ! !], p. 337; genus *Pepoaza*, p. 346; *P. andecola*, p. 351; *Dendrocolaptes lafresnayanus*, p. 308; *Colaptes rupicola*, p. 377; *Picus cactorum*, *P. atriventris*, p. 278; *P. canipileus*, *P. puncticeps*, p. 379; *P. fumigatus*, *P. nigriceps*, *Picumnus albosquamatus*, p. 380; *Aulacorhynchus cœruleo-cinctus*, p. 382.

1836. KITTLITZ, [F. H. v.] Ueber einige Vögel von Chili, [u. s. w.] <*Oken's Isis*, Bd. xxix, 1836, pp. 347–351.

Auszüge aus *Mém. Acad. Imp. des Sciences de Pétersbourg*, tome i, 1831, p. 174.

1836. Martin, R. M. History | of the | West Indies: | comprising | . . . . [the rest of the title differs in the two vols.] By R. Montgomery Martin, F. S. S. | [Seal.] | Vol. I. [II.] | — | London: | Whittaker & Co. Ave Maria Lane. | — | MDCCCXXXVI. | 2 vols. 16mo? [half-sheets—8 ll. to a sig.]. Vol. I, pp. xxxvi, 308; Vol. II, pp. viii, 350.

Slightly ornithological in some places—as at I, pp. 83, 84; II, pp. 83–94.

1836. Moritz, C. Notizen zur Fauna der Insel Puertorico. <*Arch. f. Naturg.*, ii, (1), 1836, pp. 373–392.

Ornithologisch *passim.*

1836. Taylor, R. C. Notes on Natural Objects observed while staying in Cuba. <*Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 449–457.

Narrative, partly ornithological.

1837. Bonaparte, C. L. [Notices and Descriptions of new or interesting Birds from Mexico and South America.] <*P. Z. S.*, v, 1837, pp. 108–122.

I, on birds from Mexico, 35 spp.; II, from Guatemala, 39 spp.; III, from Brazil near Peru, 20 spp.—*Centurus subelegans*, p. 109; *Icterus parisorum*, p. 110; *Cardinalis sinuatus*, p. 111; *Tyrannus divaricata*, *Pipra elegantissima*, p. 112; *P. linearis*, p. 113; *Centurus Santa Cruzi*, p. 116; *Euphonia hirundinacea*, *Arremon giganteus*, *Icteria velasquezii*, p. 117; *Sylvicola decurtata*, *Turdus grayi*, p. 118; *Scolopacinns* (g. n.) *rufiventris*, p. 119; *Micropogon flavicolle*, *Asthenurus rufiventris*, *Guiraca magnirostris*, *Spiza versicolor*, p. 120; *Tanagra darwinii*, *Aglaia nigrocincta*, *Rhamphocelus icteronotus*, p. 121; *Agalaia schrankii*, *Pipra scrutata*, p. 122, spp. nn.

1837. Bredow, — v. Auszüge aus den Schreiben des reisenden Naturforschers C. Moritz in Süd-Amerika. <*Arch. f. Naturg.*, 1837, (1), pp. 408–414.

Ornithologisch *passim.*

1837. Gould, J. [Characters of three New Neotropical Birds.] <*P. Z. S.*, v, 1837, pp. 79, 80.

Corvus nobilis, *Ortyx guttata*, p. 79; *Thamnophilus fuliginosus*, p. 80.

1837. l'Herminier, Dr. —. Anatomie verschiedener Vögel aus Südamerica. <*Oken's Isis*, Bd. xxx, 1837, pp. 847, 848.

Auszüge aus der Zeitschrift: *L'Institut*, 1837, Nr. 220.

1837. Lesson, R. P. Neue Vögel. <*Oken's Isis*, Bd. xxx, 1837, pp. 714, 715.

Auszüge aus der Zeitschrift: *L'Institut*, ii, 1834, 316. 10 Arten: *Megalonyx medius*, *Phytotoma molinæ*, *Pyrgita peruviensis*, p. 714; *Pithylus* [sic] *olivaceus*, *P. luteus*, *Dolichonyx griseus*, *Fringilla erythrorhyncha*, *Ada commersonii*, *Vermivora elegans*, *Troglodytes hornensis*, p. 715.

1837. d'Orbigny, A. Mémoire sur la distribution géographique des Oiseaux Passereaux, dans l'Amérique méridionale. <*Compt. Rend. de l'Acad. Sci.*, v, 1837, pp. 496–498.

Division des régions de l'Amérique méridionale en trois zones suivant leur distance à l'équateur.—Considération des espèces sous le rapport de la température des lieux qu'elles habitent.

1837. d'Orbigny, A. Observations on the Raptores of South America. <*Mag. of Zool. and Bot.*, i, 1837, pp. 347–359.

Trans. from *Voy. Amér. Mérid.* Of very general character, but with special reference to their distribution in zones of latitude and to their habits.

1837. ——— Beyträge zur Naturgeschichte von Brasilien von Maximilian, Prinzen zu Wied. Weimar, Indust. Compt. iv. 1. 32. 8. 442. <*Oken's Isis*, Bd. xxx, 1837, pp. 97, 98.

1837. ——— Beyträge zur Naturgeschichte von Brasilien von Max. Prinzen zu Wied. Weimar. Industrie Comptoir. vi. 2. 1833. 8. 443–946. 2 Tafeln. <*Oken's Isis*, Bd. xxx, 1837, pp. 177–179.

1837–38. d'Orbigny, A., *and* Lafresnaye, F. de. Synopsis Avium in itinere per Americam meridionalem collectarum. <*Magas. de Zool.*, vii, 1837, pp. ———; viii, 1838, pp. ———. [88 + 34 pp.. with pll.]

Not seen: defective title from Giebel.

1838. Bonaparte, C. L. Catalogo di Uccelli Messicani e Peruviani. <*Nuovi Ann. Sci. Nat. Bologna*, ii, 1838, pp. 340–348, 401–416.

This paper appears to be very similar to, if not a mere version of, that in *P. Z. S.*, 1837, *q. v.*

1838. LAFRESNAYE, [F.] DE, *and* D'ORBIGNY, [A.] Notice sur quelques oiseaux de Carthagène et de la partie du Mexique la plus voisine, rapportés par M. Ferdinand de Candé, officier de la Marine royale. <*Rev. Zool.*, i, 1838, pp. 164–166.

17 espèces.—*Embernagra albinucha*, *Pipra pareolides*, *Synnalaxis* [sic] *candei*, p. 165; *Tamatia gularis*, p. 166, spp. nn.

1838. D'ORBIGNY, A. Rapport sur un Mémoire de M. Alcide D'Orbigny, intitulé: Sur la distribution géographique des oiseaux passereaux dans l'Amérique méridionale. <*Compt. Rend. de l'Acad. Sci.*, vi, 1838, pp. 190–194.

1839. GOULD, J. [Polyborus gallapagoensis von Darwin, u. s. w.] <*Oken's Isis*, Bd. xxxii, 1839, pp. 139, 140.

P. Z. S. London, 1837.

1839. LAFRESNAYE, F. DE. Quelques oiseaux nouveaux de la collection de M. Charles Brelay, à Bordeaux. <*Rev. Zool.*, ii, 1839, pp. 97–100.

Pyranga sanguinolenta, *Embernagra brunnei-nucha*, *E. pyrgitoïdes*, p. 97; *Pachyrhynchus aglaiæ*, *Myadestes* [sic] *obscurus*, p. 98; *Thriothorus guttulatus*, *Pyrrhula cinnamomea*, p. 99; *Dendrocolaptes affinis*, *Uncirostrum brelayi*, p. 100. Toutes les espèces sont du Mexique.

1839. D'ORBIGNY, A. Histoire | Physique, Politique et Naturelle | de | L'Ile De Cuba | par M. Ramon de la Sagra, Directeur du Jardin Botanique de la Havane, | Correspondant de l'Institut Royal de France, etc. | — | >Ornithologie, | par Alcide D'Orbigny. | [Dessin.] | Paris, | Arthur Bertrand, éditeur, | Libraire de la Société de Géographie | et de la Société Royale des Antiquaires du Nord, | Rue Hautfeuille, 23. | — | 1839. 8vo, paper, forming part (with the mammals) of one vol. of the series, separately paged, pp. xxxi, 336. Folio atlas of pll. i–xix, xix bis, xx–xxi.

A standard work, to be used in connection with Vigor's earlier and Gundlach's and others' later treatises on the same subject. The Introduction, pp. vii–xxxi, is a résumé, from which it appears there were known 129 Cuban spp., of 33 families—14 South American, 49 North American, 26 American, 8 Arctogæan, 5 Neotropico-Arctogæan, and 27 Cuban and Antillian. The main text treats of those species seriatim, systematically, and is synonymatic, descriptive, and general. French, Latin, and Spanish indexes follow. The plates are published separately; they are as follows:—Pl. 1, *Falco sparverioides*. 2, *Otus siguapa* D'Orb. 3, *Noctua siju* O'Orb. 4, *Turdus rubripes*. 5, *Turdus minor*. 6, *Sciurus* [sic] *sulfurascens*. 7, *Turdus carolinensis*. 8, *Sylvia palmarum*. 9, *Sylvia caerulescens*. 10, *Sylvia maritima*. 11, *Tanagra zena*. 12, *Tyrannus caudifasciatus* D'Orb. 13, *Tyrannus magnirostris* D'Orb. 14, *Tyrannus matutinus*. 15, *Passerina olivacea*. 16, *Linaria caniceps* D'Orb. 17, *Pyrrhula nigra*. 18, *Quiscalus barytus*. 19, *Q. atroviolaceus* D'Orb. 19 bis, *Xanthornus dominicensis*. 20, *Icterus humeralis*. 21, f. 1, *Orthorhynchus colubris*; f. 2, *O. ricordi*. 22, *Todus multicolor*. 23, *Colaptes superciliaris*. 24, *Colaptes fernandinæ*. 25, f. 1, *Saurothera merlini* D'Orb.; f. 2, 3, *Crotophaga ani*. 26, *Trogon temnurus*. 27, *Columba portoricensis*. 28, *C. inornata*. 29, *Phœnicopterus americanus*. 30, *Aix sponsa*. 31, f. 1, *Totanus flavipes*, egg; f. 2, *Parra jacana*, egg; f. 3, *Aramus guarauna*; f. 5, *Rallus longirostris* (head).

1839. D'ORBIGNY, A. Naturhistorische Schilderung des nördlichen Patagonien. <*Arch. f. Naturg.*, 1839, (1), pp. 47–61.

Aus dessen *Voy. dans l'Amér. Mérid.* Grössten Theils ornithologischen Inhalts.

1839. D'ORBIGNY, A. Ueber die geographische Verbreitung und die Lebensweise der südamerikanischen Singvögel. <*Arch. f. Naturg.*, 1839, (1) pp. 235–251.

Mitgetheilt aus dessen *Reise*, SS. 141–158.

1839. D'ORBIGNY, A. Voyage dans l'Amérique méridionale, par A. D'Orbigny. Paris, Levrault, I. 1834. 672. II. 1836. 4. <*Oken's Isis*, Bd. xxxii, 1839, pp. 406–435.

Verzeichniss der Vögel, pp. 408, 410, 411. Auszüge, pp. 414–435.

1839. VIGORS, N. A. [Observations upon a Collection of Birds from the West Coast of South America.] <*P. Z. S.*, vii, 1839, p. 115.

1840. BOISSONNEAU, [A.] Oiseaux nouveaux ou peu connus de Santa-Fé de Bogota. <*Rev. Zool.*, iii, 1840, pp. 2–8.

Ampelis nattererii, p. 2; *A. rufocristata*, *A. riefferii*, *Tanagra constantii*, p. 3; *T. vassorii*, *T. riefferii*, *Uncirostrum La Fresnayii*, p. 4; *U. d'Orbignyi*, p. 5; *Ornismia* [sic] *bonarpartei* [sic], *O. torquata*, *O. paradisæa*, p. 6; *O. guerinii*, p. 7; *Trochilus La Fresnayi*, p. 8.

1840. Boissonneau, [A.] Oiseaux nouveaux de Santa-Fé de Bogota. < *Rev. Zool.*, iii, 1840, pp. 66–71.

Tanagra eximia, p. 66; *T. tæniata*, *T. labradorides*, *T. assimilis*, p. 67; *T. albofrenatus*, *T. pallidinucha*, p. 68; *T. schistaceus*, *T. semirufus*, p. 69; *Pteroglossus albivitta*, *Quiscalus subalaris*, *Setophaga ornata*, p. 70; *Tyrannula fumigata*, p. 71.

1840. Bonaparte, C. L. Catalogue d'Oiseaux du Mexique et du Pérou. < *Rev. Zool.*, iii, 1840, pp. 19, 20.

This is not the article itself, but merely an editorial notice of Bp.'s new genus *Scolopacinus*. See *P. Z. S.* 1837.

1840. Fraser, L. [On some New Species of Birds from Bogota in the Collection of the Earl of Derby.] < *P. Z. S.*, viii, 1840, pp. 59, 60.

Turdus gigas, *Psittacus chalcopterus*, p. 59; *Picus elegans*, p. 60.

1840. Lafresnaye, [F.] de. Oiseaux nouveaux de Santa-Fé de Bogota. < *Rev. Zool.*, iii, 1840, pp. 101–106.

Uncirostrum cyaneum, *Conirostrum sitticolor*, p. 102; *Merulaxis senilis*, *M. griseicollis*, *M. squamiger*, p. 103; *M. analis*, *Anabates Boissonneautii*, p. 104; *Limnornis unirufus*, *L. canifrons*, p. 105.

1840. Lafresnaye, F. de. Nouvelles espèces d'oiseaux tuées et rapportées par M. Léclancher, chirurgien de la marine, embarqué sur la Vénus, dans son dernier voyage de circumnavigation. < *Rev. Zool.*, iii, 1840, pp. 259–261.

Turdus rufopalliatus, p. 259; *Passerina leclancheri*, p. 260, spp. nn.

1840. Lesson, R. P. Oiseaux nouveaux. < *Rev. Zool.*, iii, 1840, p. 1.

Melias corallirhynchus, *Ramphocelus affinis*.

1840. Schomburgk, R. H. A Description | of | British Guiana, | Geographical and Statistical: | exhibiting | its resources and capabilities, | together with | the present and future condition and prospects | of the colony. | By | Robert H. Schomburgk, Esq. | London: | Simpkin, Marshall, and Co., | Stationers' Hall Court. | 1840. 1 vol. 8vo. 2 p. ll., map, pp. 155.

In this little tract (by no means to be taken for Schomburgk's great work on Guiana) there occurs, under head of "Animal Kingdom", some remarks on birds, pp. 37, 38.

1841. Bridges, T. [Notes on various Birds (19 spp.) and Mammals from Chile.] < *P. Z. S.*, ix, 1841, pp. 93–95.

1841. Gould, J. The | Zoology | of | the Voyage of H. M. S. Beagle, | under the command of Captain Fitzroy, R. N., | during the years | 1832 to 1836. | Published with the approval of | the Lords Commissioners of her Majesty's Treasury. | Edited and Superintended by | Charles Darwin, Esq., M. A. F. R. S. Sec. G. S. | Naturalist to the Expedition. | — | Part III. | Birds, | by | John Gould, Esq., F. L. S. | — | London: | Published by Smith, Elder and Co. 65, Cornhill. | MDCCCXLI. 4to. 4 p. ll., pp. ii, 156, 4 ll., pll. col'd 50.

The technical matter of the work was prepared by Gould, with assistance from G. R. Gray; but the general text is Darwin's. Most of the new species collected on the voyage appear to have been before described. The following names occur without citation of previous authority, most of which, doubtless, if not all, are new:—*Craxirex*, p. 22; *Strix punctatissima* (Gray), p. 34; *Progne modesta*, p. 39; *Hirundo frontalis*, p. 40; *Pyrocephalus*, p. 44; *P. parvirostris*, p. 44; *P. obscurus*, *P. nanus*, p. 45; *P. dubius*, p. 46; *Myiobius* (Gray), p. 46; *M. auriceps*, p. 47; *M. magnirostris*, *M. parvirostris*, p. 48; *Serpophaga*, *S. albocoronata*, p. 49; *Pachyrhamphus* (Gray), *P. albescens*, p. 50; *P. minimus*, p. 51; *Lichenops erythropterus*, p. 52; *Fluvicola azaræ*, p. 53; *Agriornis*, *A. striatus*, p. 56; *A. micropterus*, p. 57; *Opetiorhynchus lanceolatus*, p. 68; *Eremobius*, *E. phœnicurus*, p. 69; *Synallaxis major*, p. 76; *S. rufogularis*, p. 77; *S. flavigularis*, *S. brunnea*, p. 78; *Limnornis*, *L. rectirostris*, p. 80; *L. curvirostris*, p. 81; *Dendrodramus*, *D. leucosternus*, p. 82; *Muscisaxicola brunnea*, p. 84; *Sylvicola aureola*, p. 86; *Pyrrhalauda nigriceps*, p. 87; *Spermophila nigrogularis*, *Crithagra? brevirostris*, p. 88; *Ammodramus longicaudatus*, p. 90; *A. xanthornus*, p. 90; *Zonotrichia canicapilla*, p. 91; *Z. strigiceps*, p. 92; *Fringilla formosa*, p. 93; *Chlorospiza? xanthogramma* (Gray), p. 96; *Emberozoides poliocephala* (Gray), p. 98; *Geospiza magnirostris*. *G. strenua*, p. 100; *G. fortis*, *G. nebulosa*, *G. fuliginosa*, p. 101; *G. dentirostris*, *G. parvula*, p. 102; *G. dubia*, *Camarhynchus psittaculus*, *C. crassirostris*, p. 103; *Cactornis scandens*, p. 104; *C. assimilis*, p. 105; *Certhidea olivacea*, p. 106; *Zenaida galapagoensis*, p. 115; *Squatarola fusca*, p. 126; *Totanus fuliginosus*, p. 130; *Porphyrio simplex*, p. 133; *Larus fuliginosus*, p. 141. (*Cinclodus* and *Rhinocrypta* are proposed, apparently newly, by Gray, on one of the unpaged leaves.) Most of the birds of the volume are South American. An appendix, by T. C. Eyton, gives some anatomical details respecting 12 spp. The plates are as follows:—

1841. GOULD, J.—Continued.

Pl. 1, *Milvago albogularis*; 2, *Craxirex galapagoensis*; 3, *Otus galapagoensis*; 4. *Strix punctatissima*; 5, *Progne modesta*; 6, *Pyrocephalus parvirostris*; 7, *P. nanus*; 8, *Tyrannula magnirostris*; 9, *Lichenops erythropterus*; 10, *Fluvicola azaræ*; 11, *Xolmis variegata* (marked *Taenioptera v.*); 12, *Agriornis micropterus*; 13, *A. leucurus*; 14, *Pachyrhamphus albescens*; 15, *P. minimus*; 16, *Mimus trifasciatus*; 17, *M. melanotis*; 18, *M. parvulus*; 19, *Uppucerthia dumetoria*; 20, *Opetiorhynchus nigrofremosus* (marked *O. lanceolatus*); 21. *Eremobius phœnicurus*; 22, *Anumbius acuticaudus* (marked *Synallaxis major*); 23, *Synallaxis rufogularis*; 24, *S. flavogularis*; 25, *Limnornis curvirostris*; 26, *L. rectirostris*; 27, *Dendrodramus leucosternus*; 28, *Sylvicola aureola*; 29, *Ammodramus longicaudatus*; 30, *A. manimbe* (marked *A. xanthornus*); 31, *Passer jagoensis*; 32, *Chlorospiza melanodera*; 33, *C. xanthogramma*; 34, *Aglaia striata* (marked *Tanagra darwini*); 35, *Pipilo personata*; 36, *Geospiza magnirostris*; 37, *G. strenua*; 38, *G. fortis*; 39, *G. parvula*; 40, *Camarhynchus psittaculus*; 41, *C. crassirostris*; 42, *Cactornis scandens*; 43, *C. assimilis*; 44, *Certhidea olivacea*; 45, *Xanthornus flaviceps*; 46, *Zenaida galapagoensis*; 47, *Rhea darwinii*; 48, *Zapornia notata*; 49, *Z. spilonota*; 50, *Anser melanopterus*.

1841. HILL, R. [Letter relating to the Nests of Birds of Jamaica.] < *P. Z. S.*, ix, 1841, pp. 69, 70.

1842. HILL, R. [On the Nests of Jamaican Birds.] < *Ann. Mag. Nat. Hist.*, ix, 1842, pp. 145–147.

From *P. Z. S.*, Sept. 14, 1841, pp. 69, 70.

1842. LAFRESNAYE, [F.] DE. Description de quelques oiseaux nouveaux de Colombie. < *Rev. Zool.*, v, 1842, pp. 301, 302.

Catamblyrhynchus (g. n.) *diadema*, *Conirostrum albifrons*, p. 301; *C. coeruleifrons*, p. 302.

1842. LAFRESNAYE, [F.] DE. Oiseaux nouveaux de Colombie. < *Rev. Zool.*, v, 1842, pp. 332–336.

Grallaria ruficapilla, p. 333; *G. nana*, p. 334; *Copurus leuconotus*, *Arremon atropileus*, p. 335; *Tachyphonus victorinæ*, p. 336. Coup-d'œil sur 9 esp. de *Grallaria*.

1842. LESSON, R. P. Notes sur les Oiseaux nouveaux ou peu connus rapportés de la Mer du Sud, par M. Adolphe Lesson. < *Rev. Zool.*, v, 1842, pp. 135, 136.

Megalonyx nanus, *Parra cordifera*, *Arara erythrofrons*, *Psittacus auropalliatus*, *P. chrysopogon*, *P. eburnirostrum*, p. 135; *Trogon capistratum*, p. 136, spp. nn.

1842. LESSON, R. P. Species avium novæ aut minùs cognitæ: auctore R. P. Lesson, in itinere A. Lessonio collectæ. < *Rev. Zool.*, v, 1842, pp. 174, 175.

Crypticus apiaster, *Momotus Lessonii*, *Penelope albiventer*, *Pipra fastuosa*, *Picolaptes capistrata*, *Pitylus lazulus*, p. 174; *Tanagra diaconus*, *T. affinis*, *Ornismya cinnamomea*, *Ortyx leucopogon*, p. 175.

1843. CABOT, S., JR. [Corvus vociferus, p. 155; Oriolus musicus, p. 155; Momotus yucatacensis, p. 156, spp. nn. from Yucatan.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1843, pp. 155, 156.

1843. FRASER, L. [On the Collection of South American Birds brought to England by Mr. Bridges.] < *P. Z. S.*, xi, 1843, pp. 108–121.

Numerous species fully annotated by the collector, constituting an approximate list of Chilian birds.

1843. HARTLAUB, G. Description de quatre espèces d'oiseaux de la Nouvelle-Grenade. < *Rev. Zool.*, vi, 1843, pp. 289, 290.

Vireo versicolor, *Myiobius diadema*, *M. pyrrhopterus*, *Todirostrum granadense*, p. 289.

1843. LAFRESNAYE, F. DE. Quelques oiseaux nouveaux ou peu connus de Colombie. < *Rev. Zool.*, vi, 1843, pp. 68–70.

Ampelis aureopectus, p. 68; *Tanagra olivicyanea*, *T. argentea*, *T. nigroviridis*, p. 69, spp. nn.

1843. LAFRESNAYE, F. de. Description de deux Oiseaux de Colombie. < *Rev. Zool.*, vi, 1843, pp. 131–133.

Merulaxis orthonyx, p. 131; *Tangara albocristatus*, p. 132.

1843. LAFRESNAYE, F. de. Oiseaux nouveaux de Colombie. < *Rev. Zool.*, vi, 1843, pp. 290, 292.

Tanagra atricapilla, *T. aurulenta*, *Cassicus uropygialis*, *Synnalaxis* [sic] *striaticollis*, *S. unirufus*, *S. fuliginosus*, *S. brachyurus*, *S. gularis*, p. 290; *S. cinnamomeus*, *Muscicapa cinnamomeiventris*, *M. fuscocapilla*, *M. ruficeps*, *Pachyrhynchus squamatus*, *Fringilla analis*, *Spermophila luctuosa*, *S. olivaceoflava*, *Querula fuscocinerea*, p. 291; *Carduelis colombianus*, *Setophaga nigrocincta*, p. 292.

1843. Tschudi, J. J. v. Diagnosen einiger neuer peruanischer Vögel. <*Arch. f. Naturg.*, 1843, (1), pp. 385–390.

Ampelis elegans, *A. cincta*, *Columba gracilis*, *C. meloda*, p. 385; *C. frenata*, *Penelope rufiventris*, *P. adspersa*, p. 386; *Thinocorus ingæ*, *Crypturus kleei*, *Odontophorus speciosus*, *Oedecnemus superciliaris*, p. 387; *Charadrius winterfeldtii*, *C. resplendens*, *Crex facialis*, *C. femoralis*, p. 388; *Larus modestus*, *Fulica ardesiaca*, *Sterna acutirostris*, *S. exilis*, p. 389; *Dysporus variegatus*, *Anser montana*, *Anas leucogenis*, p. 390, 22 spp.; die ausführlichen Beschreibungen und Abbildungen dieser Vögel in dem ornithologischen Theile, Fauna Peruana.

1844. Abbott, S. L. [Remarks on Exhibition of some Birds from Surinam.] <*Proc. Bost. Soc. Nat. Hist.*, i, 1844, p. 171.

1844. Cabot, S., Jr. Descriptions and Habits of Some of the Birds of Yucatan. <*Journ. Bost. Soc. Nat. Hist.*, iv, pt. iv, 1844, pp. 460–467. (Read Nov. 1, 1843.)

Ortyx nigrogularis Gould. *Falco percontator*, p. 462; *Corvus vociferus*, p. 464; *Oriolus musicus*, p. 465; *Momotus yucatacensis* [sic], p. 466, spp. nn.

1844. Hartlaub, [G.] Description de sept Oiseaux nouveaux de Guatemala. <*Rev. Zool.*, vii, 1844, pp. 214–216.

Picus guatemalensis, *Turdus* (*Merula*) *rufitorques*, *Tyrannus* (*Milvulus*) *monachus*, p. 214; *Conirostrum superciliosum*, *Garrulus* (*Cyanocorax*) *melanocyaneus*, *Geococcyx affinis*, p. 215; suivie de la synonymie de *G. viaticus*.

1844. Hill, R. [Letter accompanied by a donation of two Birds' Skins from Jamaica.] <*P. Z. S.*, xii, 1844, p. 1.

1844. Lafresnaye, [F.] de. Observations ornithologiques [sur divers Oiseaux de la Nouvelle-Grenade]. <*Rev. Zool.*, vii, 1844, pp. 78–80.

Muscicapa fuscocapilla Lafr. = *Myiobus diademata* Hartl., *Myiobius pyrrhopterus* Hartl. = *Muscipeta cinnamomea* d'Orb. et Lafres., *Setophaga nigrocincta* Lafr. = *S. canadensis* auct.

1844. Lafresnaye, [F.] de. Nouvelles espèces d'oiseaux de Colombie. <*Rev. Zool.*, vii, 1844, pp. 80–83.

Dendrocolaptes perrotii, *Tyrannula ardosiaca*, p. 80; *Hylophilus leucophrys*, *Chætura brunnitorques*, *Setophaga flaveola*, p. 81; *Thamnophilus albicans*, *T. multistriatus*, *T. brevirostris*, p. 82; *T. shistaceus* [sic], *T. aspersiventer*, p. 83.

1844. Lafresnaye, F. de. Description de quelques Oiseaux de la Guadeloupe. <*Rev. Zool.*, vii, 1844, pp. 167–169.

Saltator guadelupensis, *Turdus montanus*, *T. L'Herminieri*, p. 167; avec des détails sur la *Procellaria diabolica* L'Herm.

1844. Lesson, R. P. Oiseaux nouveaux. <*Rev. Zool.*, vii, 1844, pp. 433–437.

Picolaptes cinnamomeus, *Ornismya feliciana*, p. 433; *Troglodytes murinus*, p. 434; *Arremon abeillei*, *Tiaris cruentus*, p. 435; *Pendulinus californicus*, p. 436.

1844. Tschudi, J. J. von. Avium conspectus quae in Republica Peruana reperiuntur et pleraeque observatae vel collectae sunt in itinere a Dr. I. I. de Tschudi. <*Arch. f. Naturg.*, 1844, (1), pp. 262–317.

Spp. 357 enumeratio, descriptionibus specierum et generum quorundam novorum, necnon synonymis multis, adjectis: genera nova proposita sunt a Cabanis, qui ad constituendam hanc enumerationem observationes varias communicavit.—*Polyborus taeniurus*, *Hypomorphnus*, p. 263; *Circaetus solitarius*, p. 264; *Climacocercus*, p. 265; *Circus poliopterus*, *Noctua melanota*, p. 266; *Caprimulgus ocellatus*, *C. decussatus*, *C. pruinosus* (Licht., Mus. Berol.), p. 268; *C. climacocercus*, p. 269; *Ampelis rufaxilla*, *Ptilogonys leucotis*, *P. griseiventer*, p. 270; *Pipra chloromeros*, *P. coeruleo-capilla*, p. 271; *Scaphorhynchus chrysocephalus*, *Tyrannus cinchoneti* (Licht., M. B.), *Myiarchus*, p. 272; *M. atropurpureus* (Licht., Mus. Ber.), *Euscarthmus pileatus*, *E. rufipes*, p. 273; *Elaenia modesta*, *E. brevirostris*, *E. viridiflava*, p. 274; *Mionectes*, *M. poliocephalus*, *Leptopogon*, *L. superciliaris*, p. 275; *L. cinereus*, *Setophaga melanocephala*, *S. chrysogaster*, *Ptyonura albifrons*, p. 276; *Ochthites*, p. 277; *Thamnophilus luctuosus*, *T. olivaceus*, *T. axillaris*, *Pithys leucophrys*, p. 278; *Corythopis torquata*, *Cinclus leucocephalus*, *Chamaeza olivacea*, p. 279; *Turdus serranus*, *Mimus longicaudatus*, p. 280; *Cillurus*, *C. palliatus*, *Pteroptochus femoralis*, p. 281; *P. acutirostris*, *Cyphorhinus*, *C. thoracicus*, *Troglodytes audax*, *T. leucophrys*, p. 282; *Myiodioctes coronatus*, *M. tristriatus*, p. 283; *Hylophilus frontalis*, *H. olivaceus*, *Procnopis*, p. 285; *P. atrocoerulea*, *P. argentea*, *Callospiza pulchra*, *C. xanthocephala*, p. 285; *C. calliparaea* (Licht., Mus. Berol.), *Tanagra frugilegus*, p. 286; *T. analis*, *Phaenisoma ardens*, p. 287; *Saltator elegans*, p. 288; *Arremon frontalis*, *Phrygilus*, p. 289; *P. plebejus*, *P. rusticus* (Licht., M. B.), *Sporophila*, *S. luctuosa* (Licht., M. B.), p. 291; *Diglossa melanops*, *Anabates auritus* (Licht., M. B.), p. 294; *A. montanus*, *A. ochrolaemus*, *A. melanorhynchus*, *Dendrocolaptes chunchotambo*, p. 295; *D. validus*, *Trochilus apicalis* (L., M. B.), p. 296; *T. phoeo-*

1844. TSCHUDI, J. J. VON.—Continued.

pygus (L., M. B.), *T. leucogaster*, p. 297; *T. opacus* (L., M. B.), *T. insectivorus*, *T. otero*, p. 298; *Trogon heliothrix*, *Lypornix ruficapilla*, p. 300; *Capito glaucogularis*, p. 301; *Picus haematogaster*, p. 302; *Psittacus mercenarius*, p. 303; *P. tumultuosus*, *Conurus mitratus*, *C. rupicola*, *C. sitophagus*, p. 304; *Columba melancholica*, *Odontophorus pachyrhynchus*, p. 306; *Crypturus atro-capillus*, p. 307; *Larus serranus*, p. 314; *Anas puna* (Licht., M. B.), p. 315, genn. et spp. nn.

1845. CABOT, S., JR. Further accounts of some of the Birds of Yucatan. < *Journ. Bost. Soc. Nat. Hist.*, v, pt. i, 1845, pp. 90–93, pl. xii. (Read Jan. 3, 1844.)

Pyrrhula raptor, p. 90, pl. xii; *Picus dubius*, p. 91; *Picus parvus*, *P. yucatanensis*, p. 92, spp. nn.

1845. CABOT, S., JR. [On Himantopus nigrocollis and Anhinga carolinensis from Surinam.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1845, p. 46.

1845. DES MURS, O. Description de quelques espèces nouvelles d'Oiseaux. < *Rev. Zool.*, viii, 1845, pp. 207–209.

Psittacus amazonicus, *Ortyx perrotiana*, *Galbalcyrhynchus* (g. n.) *leucotis*, p. 207. Avec une note sur *Falco isidori*.

1845. FRASER, L. [On Chilian Birds.] < *Ann. Mag. Nat. Hist.*, xv, 1845, pp. 430, 431.

From *P. Z. S.*, October 8, 1844.

1845. FRASER, L. [Exhibition of two Birds from Chili.] < *P. Z. S.*, xiii, 1845, p. 1.

1845. LAFRESNAYE, [F.] DE. Oiseaux nouveaux rapportés par M. Léclancher, chirurgien de l'expédition de la corvette la Favorite. < *Rev. Zool.*, viii, 1845, pp. 93, 94.

Scissirostrum (g. n.) *pagei*, p. 93; *Pericrocotus cinereus*, *Dicæum leclancherii*, p. 94.

1845. LAFRESNAYE, F. DE. Description de quelques oiseaux nouveaux. < *Rev. Zool.*, viii, 1845, pp. 337–342.

Thriothorus fasciato-ventris, *T. rufalbus*, p. 337; *T. leucotis*, *T. maculipectus*, *T. striatulus*, p. 338; *Campylorhynchus rufinucha*, *C. brevirostris*, *C. megalopterus*, p. 339; *Thamnophilus immaculatus*, p. 340; *Myioturdus fuscater*, *Tyrannula icterophrys*, *Tyrannulus nigrocapillus*, *Hylophilus semibrunneus*, p. 341; *H. flavipes*, p. 342.

1845. TSCHUDI, J. J. V. Nachträgliche Bemerkungen zu meinem Conspectus Avium etc. [op. cit. 1844, (1), pp. 262–317]. < *Arch. f. Naturg.*, 1845, (1), pp. 360–366.

Cyclarhis ochrocephala, *C. poliocephala*, p. 362, spp. nn.

1845. ——— Histoire physique, politique et naturelle de l'Ile de Cuba, par Ramon de la Sagra, Director du Jardin de Botanique de la Havane. Paris chez A. Bertrand. < *Oken's Isis*, Bd. xxxviii, 1845, pp. 196–218.

Vögel, pp. 200–202. Bearbeitet von A. d'Orbigny.

1845. ——— Voyage en l'Amérique meridionale, exécuté pendant 1826–1833. par Alcide d'Orbigny. Strasbourg chez Levrault. < *Oken's Isis*, Bd. xxxviii, 1845, pp. 588–600.

1845–46. TSCHUDI, J. J. V., *and* CABANIS, J. Untersuchungen | über die | Fauna Peruana | von J. J. von Tschudi, | Doctor der Philosophie, Medecin und Chirurgie, Mitglied der kaiserlich leopoldinisch-carolinischen Academie | der Naturforscher etc. etc. etc. | — | St. Gallen. | Druck und Verlag von Scheitlin und Zollikofer. | 1844–1846. 1 vol. Large 4to. > Ornithologie | bearbeitet von | Dr. J. J. von Tschudi | mit Anmerkungen | von | J. Cabanis, | Adjunkt am zoologischen Museum in Berlin. | — | 1845 und 1846. 1 p. l., pp. 1–316, pll. col'd i–xxxvi.

Contains a systematic synonymatic conspectus of Peruvian birds (cf. *Arch. f. Naturg.*, x, 1844, p. 262; xi, 1845, p. 360), followed by a general systematic account of the Peruvian avifauna, descriptive, critical, and biographical. The new species appear to have been mostly described already, as the "Conspectus" (*Arch. für Naturg.*, l. c.) is quoted in the present volume.

Turdus swainsonii Cab., p. 187; *Procnias viridis* Cab., p. 197; *Sycalis chloris* Cab., p. 216; *Conurus frontatus* Cab., p. 272, spp. nn.—Pl. I, *Hypomorphnus unicinctus* (pl. marked *Polyborus taeniurus*). II, *Circaetus solitarius*. III, *Circus poliopterus*. IV, *Noctua melanonota*. V, f. 1, *Caprimulgus decussatus*; f. 2, *C. ocellatus*. VI, f. 1, *C. climacocercus*; f. 2, *C. pruinosus*. VII, f. 1, *Ampelis rufaxilla*; f. 2, *Ptilogonys leucotis*. VIII, f. 1, *Scaphorhynchus chrysocephalus*; f. 2, *Tyrannus cinconeti*. IX, f. 1, *Euscarthmus pileatus*; f. 2, *Elaenia viridiflava*. X, f. 1, *Mionectes poliocephalus*; f. 2, *Leptopogon superciliaris*. XI, f. 1, *Thamnophilus olivaceus*;

1845–46. Tschudi, J. J. v., *and* Cabanis, J.—Continued.

f. 2, *Lithys leucophrys.* XII, f. 1, *Setophaga melanocephala*; f. 2, *Ptyonura albifrons.* XIII, f. 1, *Hylophilus frontalis*; f. 2, *Procnopis atrocoerulea.* XIV, f. 1, *Myiodioctes tristriatus*; f. 2, *Procnopis argentea.* XV, f. 1, *Cinclus leucocephalus*; f. 2, *Mimus longicaudatus.* XVI, f. 1, *Cyphorhinus thoracicus*; f. 2. *Cillurus palliatus.* XVII, f. 1, *Tanagra frugilegus*; f. 2, *Callispiza xanthocephala.* XVIII, f. 1, *Tanagra analis*, f. 2; *Callospiza pulchra.* XIX, *Phrygilus plebeius*; f. 2, *Arremon frontalis.* XX, f. 1, *Anabates montanus*; f. 2, *A. ochrolaemus.* XXI, f. 1, *A. melanorhynchus*; f. 2, *Dendrocolaptes validus.* XXII, f. 1, *D. chunchotambo*; f. 2, *Trochilus leucogaster.* XXIII, f. 1, *T. insectivorus*; f. 2, *T. otero.* XXIV, f. 1, *Lypornix ruficapilla*; f. 2, *Capito glaucogularis.* XXV, *Picus haematogaster.* XXVI, f. 1, *Conurus rupicola*; f. 2, *C. mitratus.* XXVII, *Psittacus mercenarius.* XXVIII, *Columba frenata.* XXIX, *C. meloda.* XXX, *C. gracilis.* XXXI, *Penelope rufiventris.* XXXII, *Crypturus kleei.* XXXIII, *Odontophorus speciosus.* XXXIV, *Charadrius winterfeldtii.* XXXV, *Larus modestus.* XXXVI, *Merganetta leucogenys.*

1846. Bridges, T. [Letter addressed to G. R. Waterhouse, Esq., containing notices of Bolivian Mammals and Birds.] <*P. Z. S.*, xiv, 1846, pp. 7–10.

1846. Lafresnaye, [F.] de. Sur quelques nouvelles espèces d'oiseaux de Colombie. <*Rev. Zool.*, ix, 1846 pp. 206–209.

Tachyphonus brevipes, p. 206; *Tyrannula rufipectus*, *Spermophila olivaceoflava*, p. 207; *Dendrocolaptes albolineatus*, p. 208.

1846. Lafresnaye, F. de. Sur quelques oiseaux nouveaux de l'embouchure de l'Orénoque. <*Rev. Zool.*, ix, 1846, pp. 273–277.

Nemosia nigrogenis, p. 273; *Saltator orenocensis*, p. 274; *Coracina granadensis*, *C. orenocensis*, p. 277.

1846. Lafresnaye, F. de. Quelques nouvelles espèces d'oiseaux de la Jamaïque. <*Rev. Zool.*, ix, 1846, pp. 320–322.

Tachyphonus rufo-gularis, *Pachyrhynchus aterrimus*, p. 320; *Piaya cinnamomeiventris*, *Pionus vinaceicollis*, *Columbigallina versicolor*, p. 321. Voir *R. Z.*, 1847, pp. 64, 80–83.

1846. Maximilian, Prince de Neuwied. Note rectificative sur quelques oiseaux du Brésil. <*Rev. Zool.*, ix, 1846, pp. 162–164.

1846. ——— Untersuchungen über die Fauna peruviana auf einer Reise in Peru von D. J J. von Tschudi. St. Gallen bey Scheitlin. Lief. vi. 1846. S. 189. 244. Taf. 6. ill. <*Oken's Isis*, Bd. xxxix, 1846, pp. 312, 313.

1846–47. Jardine, W. Horæ Zoologicæ:—No. VIII. Ornithology of the Island of Tobago. <*Ann. Mag. Nat. Hist.*, xviii, 1846, pp. 114–121; xix, 1847, pp. 78–83; xx, 1847, pp. 328–334, 370–378.

Acanthylis brachyura, p. 120.

1847. Bridges, T. Notes in addition to former [P. Z. S. 1843, p. 108, and 1846, p. 9] Papers on South American Ornithology. <*P. Z. S.*, xv, 1847, pp. 28–30.

Miscellaneous notes on a few species.

1847. Bridges, T. Notes in addition to former [P. Z. S., 1843, p. 108; 1846, p. 9] Papers on South American Ornithology. <*Ann. Mag. Nat. Hist.*, xix, 1847, pp. 419–421.

From *P. Z. S.*, Mar. 23, 1847, pp. 28–30.

1847. Denny, W. A few remarks on the Geographical Distribution of Birds in the West Indies. <*P. Z. S.*, xv, 1847, pp. 36–41.

I. 45 spp. land-birds common to Jamaica, Cuba, and United States. II. 7 spp. land-birds observed in Terra Firma, but unknown in North America. III. 60 spp. peculiar to the West Indies. With numerous water-birds of general dispersion. The list is obviously defective and very inaccurate, having no authority whatever.

1847. Gardner, G. Notes of Birds in Brazil. <*Zoologist*, v, 1847, p. 1637.

1847. Gay, C. Historia | fisica y politica | de Chile | segun documentos adquiridos en esta republica | durante doce años de residencia en ella | y publicada | bajo los auspicios del supremo Gobierno | por Claudio Gay | Ciudadano Chileno, | individuo de varias sociedades cientificas nacionales y estrangeras, | caballero de la legion de honor. | Zoologia. | — | Tomo primero. | [Blazon.] | Paris | en casa del autor. | Chile | en el Museo de Historia Natural de Santiago. | — | MDCCCXLVII | 8vo. pp. 496. >Aves, pp. 183–496. Atlas, folio.

1847. Gay, C.—Continued.

Gay was little of an ornithologist, and his work passes for no more than it is worth. The text consists of a diagnosis and description of each species and group, with a slight synonymy and miscellaneous matter, chiefly relating to habits. Birds are divided into Rapaces, Pajarillos, Trepadoras, Palomas, Gallinaceas, Zancudas, and Nadadoras. *Ulula fasciata*, p. 252; *Sylviorthorhynchus* (g. n., p. 315) *desmurii*, p. 316; *Chlorospiza aldunatei*, p. 356; *Zenaida souleyetiana*, p. 380; *Peristera auriculata*, p. 381; *Nothura punctulata*, p. 391; *Squatarola urvillii*, p. 401, spp. nn. Cf. *Edinb. New Philos. Jour.*, n. s., iii, 1856, pp. 335–338.

1847. Gosse, P. H. The | Birds of Jamaica. | By | Philip Henry Gosse; | assisted by Richard Hill, Esq., of Spanish-town. | London: | John Van Voorst, Paternoster Row. | M.DCCC.XLVII. 1 vol. 8vo. 1 p. l., pp. x, 447, and 1 l. of advts. (A separately-titled vol. of 52 colored plates attends this work. See 1849.)

Nearly 200 spp. Text almost entirely biographical and "entirely from original investigation" of the author and R. Hill, "whose notes *pervade* this volume". . . "An observer is hardly competent to determine what circumstance is trivial and what is important; many a recorded *fact* in science has lost half its value from the omission of some attendant circumstance, which the observer either did not notice, or thought irrelevant."—(Gosse, p. iv.)

The new species are:—*Ephialtes grammicus*, p. 19; *Nyctibius pallidus*, p. 49; *Tachornis phœnicobia*, p. 58; *Hirundo pœciloma*, p. 64 (lege *pœciloma*); *H. euchrysea*, p. 68; *Mellisuga humilis*, p. 127; *Sylvicola eoa*, p. 158; *S. pannosa*, p. 162; *S. pharetra*, p. 163; *Myiobius pallidus*, p. 166; *M. tristis*, p. 167; *M. stolidus*, p. 168; *Spermophila anoxantha*, p. 247; *S. adoxa*, p. 253; *Pyrrhula robinsonii*, p. 259; *Geotrygon sylvatica*, p. 316; *Egretta nivea*, p. 334; *E. ruficollis*, p. 338; *Rallus concolor*, p. 369; *Anas maxima*, p. 399; *Cyanopterus inornatus*, p. 402; *Erismatura ortygoides* "Hill", p. 406.

1847. Gosse, P. H. Extracts from the 'Birds of Jamaica, by Philip Henry Gosse.' <*Zoologist*, v, 1847, pp. 1808–1820.

1847. Hartlaub, G. Systematischer Index | zu | Don Felix de Azara's | Apuntamientos para la historia natural | de los Páxaros | del | Paraguay y Rio de la Plata. | — | Von | Dr. G. Hartlaub. | — | Bremen, | Druck von C. Schünemann. | 1847. 1 vol. sm. 4to. pp. i–vi, 1–29.

Important commentary on Azara. See 1802–05, Azara.

1847. Hartlaub, [G.] [Note sur quelques espèces nouvelles d'oiseaux de la Jamaïque, R. Z. 1846, pp. 320–322.] <*Rev. Zool.*, x, 1847, p. 64.

1847. Hartlaub, [G.] [Sur quelques oiseaux de la Jamaïque recemment décrits par M. de Lafresnaye.] <*Rev. Zool.*, x, 1847, pp. 271, 272.

1847. Lafresnaye, [F.] de. Quelques oiseaux nouveaux ou rares rapportés par M. Delattre, de Bolivie, de la Nouvelle-Grenade, et de Panama. <*Rev. Zool.*, x, 1847, pp. 67–79.

27 esp.—*Grallaria monticola*, p. 68; *Tyrannula frontalis*, p. 70; *Tanagra palpebrosa*, *Aglaia wilsoni*, p. 71; *A. fanny*, *Tachyphonus delattrii*, *Arremon aurantiirostris*, p. 72; *Saltator striatipectus*, *S. maculipectus*, p. 73; *Coccoborus cyanoïdes*, p. 74; *Linaria analoïdes*, *L. inornata*, *Geositta peruviana*, p. 75; *Dendroplex picirostris*, p. 76; *Picumnus granadensis*, p. 78; *Malacoptila panamensis*, p. 79, spp. nn.

1847. Lafresnaye, [F.] de. Réponse de M. de Lafresnaye aux Observations du docteur Hartlaub, du dernier numéro de la Revue Zoologique. <*Rev. Zool.*, x, 1847, pp. 80–83.

1847. Lafresnaye, F. de. Mélanges ornithologiques sur l'espèce de Ramphocèle à plumage variable, rapporté de la Nouvelle-Grenade par M. Delattre; et sur le Cassicus uropigyalis [sic]. <*Rev. Zool.*, x, 1847, pp. 215–218.

Ramphocelus varians, sp. n., p. 216; *Cassicus uropigyalis* (sive *curvirostris*, sp. n. supp.), p. 218.

1847. Lafresnaye, [F.] de. Réponse de M. de Lafresnaye à la notice de M. le Dr Hartlaub, de l'avant-dernier numéro de cette Revue. <*Rev. Zool.*, x, 1847, pp. 350–352.

1847. Schomburgk, R. H. The History of Barbadoes, . . . London. 1847. Roy. 8vo.

Not seen.—Cf. *P. Z. S.*, 1871, p. 267. [See beyond, Addenda.]

1847. Tschudi, J. J. v. Animal Life in the Peruvian Forests. <*Zoologist*, v, 1847, pp. 1716–1728.

1847. Tschudi, J. J. v. Animals of the Puna of Peru. <*Zoologist*, v, 1847, pp. 1758–1763.

1847. Tschudi, J. J. v. Zoology of Valparaiso. < *Zoologist*, v, 1847, pp. 1763, 1764.

1847. Tschudi, J. J. v. Zoology of Chiloe. < *Zoologist*, v, 1847, p. 1764.

1847. Tschudi, J. J. v. Animals in the Bay of Callao. < *Zoologist*, v, 1847, pp. 1764–1766.

This and the four preceding papers are extracted from "Travels in Peru".

1847. Yarrell, W. Descriptions of the Eggs of some [about 30] of the Birds of Chile. < *P. Z. S.*, xv, 1847, pp. 51–55.

1847. ——— Untersuchungen über die Fauna peruana auf einer Reise während 1838–42, von Dr. J. J. Tschudi. St. Gallen bey Scheitlin. Heft vii–xii, 1846. Kl. Folio. S. 33–316. und 80. und 35 Tafeln ill. < *Oken's Isis*, Bd. xl, 1847, pp. 703–705.

1847–48. Hartlaub, G. Ueber den heutigen Zustand unserer Kenntnisse von Westindiens Ornithologie. < *Oken's Isis*, Bd. xl, 1847, pp. 604–615; Bd. xli, 1848, pp. 401–409.

An important résumé of the subject.

1848. Cabanis, J. Reisen in | Britisch-Guiana | in den Jahren 1840–1844. | Im Auftrag S^{r}· Majestät des Königs von Preussen | ausgeführt von | Richard Schomburgk. | — | Nebst einer Fauna und Flora Guiana's nach Vorlagen | von | Johannes Müller, Ehrenberg, Erichson, Klotzsch, Troschel, | Cabanis und andern. | — | Mit Abbildungen und einer Karte von Britisch-Guiana | aufgenommen von | Sir Robert Schomburgk. | Erster [zweiter, dritter] Theil. | — | Leipzig, | Verlagsbuchhandlung von J. J. Weber. 1847 [1848, 1848]. 3 vols. Sm. 4to, shape of a large 8vo. Vol. I, 1847, map, pp. i–viii, i–x, 1–470, maps and pll. Vol. II, 1848, pp. i–xiv, 1–530, 1 l., pll. Vol. III, 1848, with special title: Versuch | einer | Fauna und Flora | von | Britisch-Guiana. | Nach Vorlagen | von | Johannes Müller, Ehrenberg, | Erichson, | Klotzsch, Troschel, | Cabanis und andern. | Systematisch bearbeitet | von | Richard Schomburgk. | — | Leipzig, | Verlagsbuchhandlung von J. J. Weber. | 1848. pp. i–viii, 531–1260, 1 l. > Vögel, bearbeitet von J. Cabanis, pp. 662–765.

The third volume, as just indicated, has a special title, by which it is sometimes cited apart from the rest, giving the impression that it is a different work.

Schomburgk's Guiana becomes a very important work in South American ornithology, from the number of new genera and species described by Cabanis in his elaborate presentation of the subject. Various touchings of birds, by Schomburgk himself, occur through the other volumes; but Cabanis's article is the formal presentation of the ornithological affair. It is a systematic synopsis, with synonymy, description, and much critical comment by Cabanis, and miscellaneous matter by Schomburgk. According to Schomburgk's opening paragraphs:

"Meine Vögelsammlung enthält 424 Arten, also noch 6 Arten mehr, als in der Einleitung zur Fauna angegeben sind: *Oscines* 83, darunter 12 neue; *Clamatores* 93, darunter 11 neue; *Strisores* 36, darunter 3 neue; *Scansores* 77, darunter 2 neue; *Raptatores* 43, darunter 1 neue; *Gyratores* 6; *Rasores* 15, darunter 1 neue; *Grallatores* 55, darunter 1 neue; *Natatores* 16. Im Ganzen 31 neue Arten.

"Bei der systematischen Anordnung ist das neuaufgestellte System des Herrn Cabanis zu Grunde gelegt worden, was hoffentlich um so willkommener geheissen werden wird, als dies jedenfalls unter allen bisher aufgestellten, das erste ist, welches den Anforderungen, die man an ein natürliches System zu stellen berechtigt ist, wirklich entspricht."

Vergl. Ornithologische Notizen von Cabanis in: *Archiv für Naturgeschichte*, Bd. i, 1847, SS. ———; und besonders abgedruckt.

Turdus gymnophthalmus, p. 665; *T. phaeopygus*, genus *Basileuterus*, p. 666; *Setophaga castaneocapilla*, p. 667; *Euphona minuta*, p. 671; *Troglodytes rufulus*, p. 672; *Thryothorus albipectus*, p. 673; *Diglossa major*, *Saltator olivascens*, p. 676; *Arremon personatus*, *Coccoborus ater*, p. 678; *Sporophila castaneiventris*, *Sycalis minor*, p. 679; *Molothrus atronitens*, *Lampropsar* (g. n.) *guianensis*, p. 682; *Chalcophanes minor*, ?*Cyanocorax hyacinthinus* ("Natt."), p. 683; *Conopophaga angustirostris*, p. 685; *Dasycephala uropygialis*, p. 686; *Anabates pyrrhodes*, *Premnocopus* (g. n.) *undulatus*, p. 689; *Copurus poecilonotus*, p. 702; *Campylopterus hyperythrus*, p. 709; *Caprimulgus nigrescens*, p. 710; ? *Nyctibius rufus*, p. 711; *Coccygus helviventris*, p. 714; *Psittacula modesta*, p. 727; *Buteo abbreviatus* ("Licht. Mus. Berol."), p. 739; *Trachypelmus* (g. n.) *subcristatus*, p. 749; *Crex schomburgkii* descr. orig. Theil ii, p. 245, spp. nn. Other genera of Cabanis's here new, or lately new, are *Geothlypis*, p. 666; *Phoenicosoma* (for *Phoenisoma*), *Pogonothraupis*, p. 669; *Arbelorhina*, p. 675; *Calyphtrophorus* [sic], p. 678; *Pyrrhocorax*, p. 713; *Monasta* (for *Monasa*), p. 719; *Ortygarchus*, p. 759.

1848. [Cabot, S., Jr.?] Incidents of Travel | in Yucatan. | By John L. Stephens, | Author of "Incidents of Travel in Egypt, Arabia, Petræa, and the | Holy Land," "Incidents of Travel in Central America," etc. | Illustrated by 120 engravings. | In two Volumes. | Vol. I [II]. New York: | Published by Harper & Brothers | for Henry Bill. | 1848. 2 vols. 8vo. Vol. I, pp. i–xii, 9–459, 54 engravings. Vol. II, pp. i–xvi, 9–478, 70 engravings. > Vol. II, Appendix, Memorandum for the Ornithology of Yucatan, pp. 469–476.

I find no indication of the authorship of this "Memorandum", but am under the impression that it is by Dr. Samuel Cabot, jr. It consists of a brief general essay on the subject, concluded with a list of "Birds observed in Yucatan during the winter of 1841, '2, between the months of October and June, which are also found in the United States, and have been figured and described by Wilson, Audubon, Bonaparte, and Nuttall", pp. 475, 476. Both volumes also contain cursory bird-matter by the author.

1848. Castelnau, [F. de]. Considérations sur l'ornithologie de l'Amérique tropicale. <*Arch. des Sc. Phys. et Nat.*, viii, 1848, p. 72.

Compt. Rend. du 6 Mars 1848.

1848. Castelnau, F. de. Considérations générales sur l'ornithologie de l'Amérique tropicale. <*Compt. Rend. de l'Acad. Sci.*, xxvi, 1848, pp. 306, 307.

1848. Castelnau, [F.] de. Considérations générales sur l'ornithologie de l'Amérique tropicale. <*Rev. Zool.*, xi, 1848, pp. 89, 90.

1848. Dubus, [B.] Ueber einige neue Vögel aus Amerika. <*Oken's Isis*, Bd. xli, 1848, p. 959.

Bull. Acad. Bruxelles, 1848, p. 347. (I cannot get this. See next title.)

1848. Lafresnaye, F. de. Description de quelques oiseaux nouveaux de Caracas (province de Venezuela) et de Bogota. <*Rev. Zool*,, xi, 1848, pp. 2–12.

Merula olivatra, p. 2; *M. atro-sericea*, p. 3; *Turdus nudigenis*, p. 4; *T. minimus*, *Scaphorhynchus chrysocephalus*, p. 5; *Tyrannula cineracea*, p. 7; *Setophaga albidiadema*, p. 8; *Conirostrum atro-cyaneum*, p. 9; *Tachyphonus canigularis*, p. 11; *T. albitempora*, p. 12.

1848. Lafresnaye, F. de. Sur le genre Psittacula et sur quelques nouvelles espèces d'oiseaux de Colombie et du Mexique. <*Rev. Zool.*, xi, 1848, pp. 170–176.

Ps. conspicillata, *Ps. viridissima*, p. 172; *Tachyphonus ruficeps*, p. 173; *Muscicapa vieillotioïdes*, p. 174; *Pipilo rufipileus*, p. 176, spp. nn.

1848. Lafresnaye, [F.] de. [Reconnaissance d'une notice, extraite des bulletins de l'Académie royale de Belgique, de quinze nouvelles espèces d'oiseaux d'Amérique, décrites par M. le vicomte Dubus.] <*Rev. Zool.*, xi, 1848, pp. 239–249.

Morphnus mexicanus, p. 239; *Ischnosceles niger*, p. 241; *Cyanocorax nanus*, *C. unicolor*, *C. violaceus*, p. 243; *Tityra albitorques*, p. 244; *Sylvia tæniata*, *Pyranga cucullata*, *Pitylus poliogaster*, p. 245; *Pipilo torquatus*, p. 246; *Carduelis notata*, *Arremon ophthalmicus*, p. 247; *Monasa unitorques*, p. 248; *M. inornata*, *Prionites carinatus*, p. 249; en suite de chaque description des observations qu'elles lui ont suggérées.

1848. Poey, D. A. Catalogo metodico de las Aves de la isla de Cuba. <*Mem. Real. Soc. Econom. de la Habana*, Nov. 1848.

Not seen: title from Giebel.

1849. Cornalia, E. Vertebratorum Synopsis in Museo Mediolanense extantium quæ per Novem Orbem Caietanus Osculati collegit annis 1846–47–48. Speciebus novis vel minus cognitis adjectis, necnon descriptionibus atque iconibus illustratis, curante. Mediolani. 1849. 4to. pp. 15, 1 pl.

Not seen.—Cf. *Nuov. Ann. Sc. Nat. Bologna*, 3d ser., iii, 1851, pp. 349–351.

1849. Deville, E. Description de quelques Mammifères et Oiseaux nouveaux de l'Amérique méridionale. <*Rev. et Mag. Zool.*, i, 1849, pp. 55–58.

Jacamerops isidori, *Galbula chalcocephala*, p. 55; *G. cyanescens*, *Bucco lanceolata*, *Oncorhynchus castelneaui*, p. 56; *Cassicus oseryi*, p. 57.

1849. Gosse, P. H. Illustrations | of the | Birds of Jamaica. | By | Philip Henry Gosse. | — | London: | John Van Voorst, 1, Paternoster Row. | 1849. Large 8vo, 1 vol. 3 pp. text (title, advt., and contents), 52 col'd pll.

1849. Gosse, P. H.—Continued.

The plates, 52 in number, representing 51 spp., drawn and engraved by the author, printed by Reeve, Benham & Reeve, form the only published part of a series designed to illustrate all the species noticed in the *Birds of Jamaica;* their numbers are consequently, not continuous, though usually arranged consecutively. They represent, among others, Gosse's new species, and include some not in the *Birds of Jamaica*, and are as follows (references to pages being to the *Birds of Jamaica*, 1848, *q. v.*):—

Pl. II, *Buteo borealis*, p. 11. IV, *Ephialtes grammicus* Gosse, p. 19. VI, *Nyctibius jamaicensis*, p. 41. VII, *N. pallidus* Gosse, p. 49. VIII, *Acanthylis collaris?*, p. 51. IX, *Tachornis phœnicobia* Gosse, with nest, p. 58. X, *Cypselus niger*, p. 63. XII, *Hirundo euchrysea* Gosse, p. 68. XIV, *Todus viridis*, p. 72. XVI, *Certhiola flaveola*, p. 84. XVII, *C. maritima* [ex Wils. = *tigrina* Gm.], p. 87. XVIII, *Lampornis mango*, p. 88. XIX, *Trochilus polytmus*, ♂, and XX, the same, ♀, and nest, p. 104. XXI, *Mellisuga humilis*, ♂, ♀, nest, p. 127. XXII, *Trochilus Maria* "Hill" (*Ann. N. H.*, 1849; not in *B. Jam.*). XXIII, *Merula leucogenys*, p. 136. XXIV, *M. jamaicensis*, p. 142. XXVIII, *Seirus noveboracensis*, p. 151. XXXII, *Sylvicola pensilis*, p. 156. XXXIV, *S. eoa* Gosse, p. 158. XXXVII, *S. pannosa* Gosse, p. 162. XXXVIII, *S. pharetra* Gosse, p. 163. XL, *Myiobius pallidus* Gosse, p. 166. XLI, *M. tristis* Gosse, p. 167. XLII, *M. stolidus* Gosse, p. 168. XLIV, *Tyrannus caudifasciatus*, p. 177. XLV, *Elania cotta* Gosse (*Ann. Nat. Hist.*, 1849; not in *B. Jam.*). LII, *Corvus jamaicensis*, p. 209. LIII, *Quiscalus crassirostris*, p. 217. LVI, *Tanagra nigrocephala*, p. 231 ("*T. zena*"). LVIII, *Tanagrella ruficollis*, ♂, ♀, p. 236. LIX, *Euphonia jamaica*, ♂, ♀, p. 238. LX, *Coturniculus tixicrus* Gosse, p. 242. LXI, *Crithagra brasiliensis*, p. 245. LXII, *Spermophila anoxantha* Gosse, p. 247 (p. "242", err. on pl.). LXIV, *S. bicolor*, p. 252. LXV, *S. adoxa* Gosse, p. 253. LXVI, *Pyrrhula violacea*, p. 254. LXVII, *P. robinsonii*, Gosse, p. 259. LXXIV, *Piaya pluvialis*, p. 277. LXXXIV, *Geotrygon sylvatica* Gosse, p. 316. LXXXV, *Zenaida? plumbea* Gosse, MSS., ref. to p. 324. XC, *Egretta nivea* Gosse, p. 334. XCIII, *E. ruficollis* Gosse, p. 338. CII, *Rallus concolor* Gosse, p. 369. CIV, *Ortygometra minuta*, p. 372. CVIII, *Himantopus nigricollis*, p. 386. CX, *Anas maxima* Gosse, p. 399. CXI, *Cyanopterus inornatus* Gosse, p. "209". CXIII, *Erismatura ortygoides*, p. 406. CXX, *Podiceps dominicus*, p. 440.

1849. Gosse, P. H. Descriptions of two new Birds from Jamaica. <*Ann. Mag. Nat. Hist.*, (2), iii, 1849, pp. 257–259.

Elania [sic] *cotta*, p. 257; *Trochilus maria*, p. 258.

1849. Hartlaub, G. Description de deux nouvelles espèces d'Oiseaux de Caraccas. <*Rev. et Mag. de Zool.*, i, 1849, pp. 274, 275.

Conurus erythrochlorus, p. 274 (voir op. cit., ii, 1850, p. 158); *Icterus melanopterus*, p. 275.

1849. Hartlaub, G. Description de deux nouvelles espèces d'Oiseaux de Venezuela. <*Rev. et Mag. de Zool.*, i, 1849, pp. 275, 276.

Ampelis formosa, p. 275; *Turdus vulpinus*, p. 276.

1849. [Jardine, W.] Ornithology of Quito. <*Jard. Contrib. Orn.*, 1849, pp. 41–45, 66.

Chiefly relating to zones of elevation. A following paper under the same title describes certain *Trochilidæ;* you will find it under head of *Trochilidæ*, in the "systematic" portion of my Bibliography, if this is ever published.

1849. Lafresnaye, [F.] de. Faune du Pérou, du docteur Tschudi, partie ornithologique; par M. J. Cabanis, conservateur du Muséum de Berlin. <*Rev. et Mag. de Zool.*, i, 1849, pp. 97–108, 232–247.

Critique de cet ouvrage.

1850. Lembeye, J. Aves | de la Isla de Cuba, | por | Juan Lembeye. | — | Habana. | Imprenta del Tiempo, | Calle de Aguiar num. 45 | — | 1850. 1 vol. 4to. pp. 136, 2 ll., pll. 20.

Text synonymatic, descriptive, and general, treating of 86 spp.; 3 others given in a Suplemento. Contains also a compiled nominal list of 222 spp. arranged after d'Orbigny.—*Vireo gundlachii*, p. 29, pl. 5, f. 1; *Muscicapa elizabeth*, p. 39, pl. 5, f. 3; *Hirundo coronata* "Mus. Berol.", p. 45; *Cypselus iradii*, p. 50, pl. 7, f. 4; *Agelaius assimilis* Gundl. MSS., p. 64; *Anabates fernandinæ*, p. 66, pl. 5, f. 2; *Orthorhynchus helenæ* Gundl. MSS., p. 70, pl. 10, f. 2; *Ardea cubensis* Gundl. MSS., p. 84, pl. 13, f. 1; *A. brunescens* Gundl. MSS., p. 84, pl. 12; *Hemipalama minor* Gundl. MSS., p. 97, pl. 13, f. 1, spp. nn.

1850. Mitchell, D. W. [Notice of Lord Harris's collection from Trinidad.] <*P. Z. S.*, xviii, 1850, pp. 99, 100.

1850. Strickland, H. E. [Descriptions of four species of birds from the Peruvian Andes.] <*Jard. Contrib. Orn.*, 1850, pp. 47–50.

Monasa flavirostris, p. 47; *Todirostrum chrysocrotaphum*, *Euphonia bicolor*, p. 48, spp. nn., the other being *Tachyphonus rufiventer* (Spix).

1850. WALLACE, A. R. Journey to explore the Natural History of the Amazon River. <*Ann. Mag. Nat. Hist.*, (2), vi, 1850, pp. 494–496.

Field-notes on several birds.

1851. BONYAN, G. R. Notes on the Raptorial Birds of British Guiana. <*P. Z. S.*, xix, 1851, pp. 53–61.

Field-observations on a large number of species, mostly given only under English names.

1851. DEVILLE, E. Note sur quatre espèces nouvelles d'oiseaux provenant de l'expédition de M. Castelnau; le Conurus Weddellii, C. jugularis, C. Luciani et Cultrides Pucheranii. <*Rev. et Mag. de Zool.*, iii, 1851, pp. 209–213.

1851. GOSSE, P. H. A | Naturalist's Sojourn | in | Jamaica. | By | Philip Henry Gosse, A. L. S., &c. | Assisted by Richard Hill, Esq., Cor. M. Z. S. Lond., | Mem. Counc. Roy. Soc. Agric. of Jamaica. | [Quotation.] | London: | Longman, Brown, Green, and Longmans. | 1851. 1 vol. Sm. 12mo. pp. iii–xxxiv, 1–508, pll. i–viii.

Birds and flowers, pp. 166–177, in the author's well-known delightful style.

1851–52. GOSSE, P. H. Singing Birds and Sweet Flowers in Jamaica. <*Edinb. New Philos. Journ.*, lii, 1852, pp. 31–33, 268–271.

Extract from "A Naturalist's Sojourn in Jamaica", p. 170.—Controverting the flippant dogma that in tropical countries, where birds and flowers are of brilliant colors, the former are songless and the latter without fragrance.

1852. ARBOLEYA, J. G. DE. Manual | de la | Isla de Cuba. | Compendio | de su Historia, Geografia, Estadistica y Administracion. | Su autor | D. José G. de Arboleya. | — | Con 5 planos y 30 láminas. | — | Havana: 1852. | Imprenta del Gobierno y Capitania General por S. M. 1 vol. 18mo. pp. 1–382 + 1 l., maps, plates.

"En punto á aves tiene la Isla excelente y abundante caza. Hé aquí una lista alfabetica de las principales", pp. 165–167, 2 lám.

1852. DEVILLE, E. Observations faites en Amérique sur les mœurs de différentes espèces d'Oiseaux-Mouches, suivies de quelques notes anatomiques et de mœurs sur l'Hoazin, le Caurale et le Savacou. <*Rev. et Mag. de Zool.*, iv, 1852, pp. 208, 226, pl. 9.

Ornismyia, dix esp. *Opisthocomus* (pl. 9). *Eurypyga helias. Cancroma cochlearia.*

1852. GUNDLACH, J. Description of five new Species of Birds, and other Ornithological notes of Cuban Species. Read before the Boston Society of Natural History, March 3d, 1852. <*Journ. Bost. Soc. Nat. Hist.*, vi, pt. iii, 1852, pp. 313–319.

Muscicapa sagræ, p. 313; *M. lembeyei*, p. 314; *Orpheus saturninus* Licht., *Columba caniceps*, p. 315; notes on 13 other spp.

1852. [JARDINE, W.] Ornithology of the Island of Tobago. <*Jard. Contrib. Orn.*, 1852, pp. 63–68, 81–88.

Merely a general sketch of the subject.

1852. [JARDINE, W.] Descriptions of some [lately] New Species of Birds from the Parisian Collections. <*Jard. Contrib. Orn.*, 1852, pp. 129–132, pll. xcvi–c.

Just before published by P. L. Sclater in *Rev. et Mag. Zool.*, iv, 1852, pp. 8, 9, *q. v.*; descr. here quoted and figg. given. *Cotinga porphyrolœma* Deville & Scl., pl. xcvi; *Arremon mysticalis* Scl., pl. xcix; *Pipilopsis flavigularis* Scl., pl. xcviii; *Pipraeidea albiventris* Scl., pl. c, f. 2; *P. isidorei* Scl., pl. c, f. 1; *P. flavicapilla* Scl., pl. xcvii, f. 2; *P. pyrocephala*, pl. xcvii, f. 1.

1852. KNOX, J. P. An Historical Account of St. Thomas, W. I., with notices of St. Croix and St. John's. By John P. Knox. New York: 1852.

Not seen: said to contain (pp. 220 et seq.) a slight sketch of the ornithology of St. Thomas, largely copied from Ledru's 'Voyage'.

1852. MOSQUERA, T. C. DE. Memoria sobre la Geografia fisica y politica de la Nueva Granada. New York. 1852. 8vo.

Not seen: title from Giebel. See the American ed., 1853.

1852. Sclater, P. L. Ornithological Observations. IX.—On the Birds from Yucatan described by Dr. Cabot in the Journal of the Boston Natural History Society [vols. iv, v]. < *Jard. Contrib. Orn.*, 1852, p. 96.

Mr. Cassin's identifications of 9 spp., only one of which is allowed to stand.

1852. Sclater, P. L. Description de six Oiseaux nouveaux appartenant à la collection du Muséum d'histoire naturelle de Paris. < *Rev. et Mag. de Zoologie*, iv, 1852, pp. 8, 9.

Arremon mysticalis [sic], *Pipilopsis flavigularis*, *Pipræidea albiventris*, p. 8; *Pipra isidorei*, *P. flavicapilla*, *P. pyrocephala*, p. 9.

1852. Seemann, B. Notes on the Zoology of the Isthmus of Panama. < *Zoologist*, x, 1852, pp. 3313–3320.

Only a slight paragraph on birds, p. 3315.

1852. Williams, J. J. The | Isthmus | of | Tehuantepec | . . . . | New York: | D. Appleton & Company, 200 Broadway. | M DCCC LII. 1 vol. 8vo. pp. 295.

Cursory allusion to a few spp. of birds at pp. 208–210.

1853. Bonyan, G. R. Notes on the Raptorial Birds of British Guiana. < *Ann. Mag. Nat. Hist.*, (2), xi, 1853, pp. 138–146.

From *P. Z. S.*, xix, 1851, pp. 53–61.

1853. Burmeister, H. Ueber die Eier und Nester einiger brasilianischer Vögel. < *J. f. O.*, 1853, i, pp. 161–177.

Treats of 17 spp., exclusive of the *Trochilidæ* mentioned, with extended descriptions of nests and eggs.

1853. Mosquera, T. C. de. Memoir | on the | Physical and Political Geography | of | New Granada. | Dedicated to the American Geographical and Sta- | tistical Society of New York. | By General T. C. de Mosquera, | [etc., 5 lines.] | Translated from the Spanish by | Theodore Dwight. | New York: | Published by T. Dwight, 116 Broadway. | 1853. 1 vol. 8vo. pp. 105, map.

I have not seen the original, 1852. In this version, under head of "Animals", occurs a nominal (Spanish and Latin) list of a few birds, not well determined, pp. 35–37. It is of no consequence.

1853. Rosenschöld, E. M. af. Bref från D:r E. Munck af Rosenschöld i Paraguay. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1852, 1853, pp. 174–176.

1853. Sclater, P. L. Description de deux nouvelles espèces d'Oiseaux. < *Rev. et Mag. de Zool.*, v, 1853, p. 480.

Dacnis pulcherrima, *Formicivora ornata*.

1853. Wallace, A. R. A | Narrative of Travels | on the | Amazon and Rio Negro, | with an account | of the | Native Tribes, | and observations on the Climate, Geology, and Natural | History of the Amazon Valley. | By Alfred R. Wallace. | With a Map and Illustrations. | London: | Reeve and Co., Henrietta Street, Covent Garden. | 1853. 1 vol. 8vo. pp. viii, 542, with 18 pp. of advts., map, folding table, col'd frontisp., pll. vii, and other illust.

Chap. XVI, Observations on the Zoology of the Amazon District, pp. 446–475; B. Birds, pp. 461–463: only mention of a few of the most interesting and beautiful. Cf. *Nat. Hist. Rev.*, i, 1854, pp. 117–121.

1854. Rosenschöld, E. M. af. Bref från Paraguay. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1853, 1854, pp. 102–114.

1854. Sclater, P. L. On two [lately] new species of South American Birds. < *Ann. Mag. Nat. Hist.*, (2), xiv, 1854, p. 158.

Culicivora boliviana, *Pipra flavo-tincta*. From *P. Z. S.*, Feb. 24, 1852.

1854. Sclater, P. L. List of a Collection of Birds received by Mr. Gould, from the Province of Quijos in the Republic of Ecuador. < *P. Z. S.*, lxxii, 1854, pp. 109–115, pll. (Aves) lxvi, lxvii.

69 spp., with critical annotation and synonymy and descriptions of some of them. *Galbula chalcothorax*, p. 110; *Tyrannula phœnicura*, p. 113, pl. lxvi, f. 1; *Arremon spectabilis*, p. 114, pl. lxvii, spp. nn.

1854. WALLACE, A. R. Habits of Birds. <*Ann. Mag. Nat. Hist.*, (2), xiii, 1854, pp. 74, 75.

Editorial excerpt from his 'Travels on the Amazon and Rio Negro', 1853, *q. v.*

[1854–56.] DESCOURTILZ, J. T. Ornithologie Brésilienne | ou | Histoire des Oiseaux du Brésil, | remarquables par leur plumage, leur chant ou leurs habitudes. | Par le Dr. J. T. Descourtilz, | Membre de la Société Linnéenne de Paris et de la Société auxiliaire de l'industrie de Rio de Janeiro. | [Dessin.] | Rio de Janeiro: | Éditeur, Thomas Reeves. | [1854–56.] 1 vol. gr. fol. (publ. par livr. i–iv). pp. 42, pll. lithochr. 48.

Contient les descriptions et les figures de 164 espèces diverses d'oiseaux du Brésil, accompagnées de quelques courts renseignements sur leurs habitudes, etc. On cite une traduction Anglais sous le nom de "Brazilian Ornithology, or a History of the Birds of Brazil".

1855. BERNSÉE, F. [Extract from a letter relating to various birds of the East Falkland Island.] <*Proc. Acad. Nat. Sci. Phila.*, vii, 1855, pp. 287, 288.

Relates to *Bernicla*, 3 spp.; *Hæmatopus*, 2 spp.; and *Chionis alba.*

1855. BOECK, E. V. Vorläufige Bemerkungen über die Ornis der Provinz Valdivia, in der Republik Chile. <*Naumannia*, 1855, pp. 494–513.

1855. CASSIN, J. The | U. S. Naval Astronomical Expedition | to | the Southern Hemisphere, | during | the years 1849–'50–'51–'52. | Lieut. J. M. Gilliss, Superintendent. | . . . . | Vol. II. Washington. MDCCCLV. >Appendix F. Birds. By John Cassin. pp. 172–206, pll. (col'd) xiv–xxviii.

Systematic account, with miscellaneous field-notes, of 119 spp. of (chiefly? entirely?) South American birds. Pl. xiv, *Falco nigriceps;* xv, *Psaracolius* [sic] *curæus;* xvi, f. 1, *Agelaius thilius;* p. 2, *Sturnella militaris;* xvii, *Chrysomitris marginalis;* xviii, f. 1, *Calliste cyanicollis;* f. 2, *C. larvata;* xix, f. 1, *C. gyroloides;* f. 2, *C. desmarestii;* xx, f. 1, *Euphonia rufiventris;* f. 2, *Chlorophonia occipitalis;* xxi, f. 1, *Ericornis melanura;* f. 2, *Scytalopus fuscus;* xxii, *Psittacus ochrocephalus;* xxiii, *Branta antarctica;* xxiv, *Bernicla magellanica;* xxv, *Anas melanocephala;* xxvi, *Querq. creccoides;* xxvii, *Fuligula metopias;* xxviii, *Phalacrocorax brasilianus.*

1855. DES MURS, P. O. Oiseaux nouveaux ou rare recueillis dans l'Amérique du Sud, par F. de Castelnau, etc. Paris, 1855. 4to. 20 pll.

Not seen: title from a bookseller's catalogue. Compare 1856, same author.

1855. GOULD, J. Descriptions of Eight New Species of Birds from South America. <*P. Z. S.*, xxiii, 1855, pp. 67–70, pl. (Aves) lxxxiii.

Campylorhynchus hypostictus, Chamæza nobilis, Formicarius nigrifrons, p. 68; *F. erythropterus, Schistochlamys speculiger, Thamnophilus corvinus, T. melanurus* (pl.), p. 69; *T. hyperythrus*, p. 70.

1855. GOULD, J. Descriptions of Eight [lately] New Species of Birds from South America. <*Ann. Mag. Nat. Hist.*, (2), xv, 1855, pp. 343–346.

Campylorhynchus hypostictus, p. 343; *Chamæza nobilis, Formicarius nigrifrons*, p. 344; *F. erythropterus, Schistochlamys speculigera, Thamnophilus corvinus, T. melanurus*, p. 345; *T. hyperythrus*, p. 346.—From *P. Z. S.*, 1855, pp. 67–70, pl. lxxxiii.

1855. GOULD, J. [Remarks on Exhibition of a portion of a collection of Birds formed by Mr. Hauxwell in the neighbourhood of the River Ucayali.] <*P. Z. S.*, xxiii, 1855, pp. 77, 78.

1855. JARDINE, W. Contributions to Ornithology. I. Professor W. Jameson's Collections from the Eastern Cordillera of Ecuador. <*Edinb. New Philos. Journ.*, new ser., ii, 1855, pp. 113–119.

Letters from W. Jameson. Field-notes on 10 spp. *Tanagara* [sic] *notabilis, Saltator arremonops*, p. 119, spp. "nn."

1855. PHILIPPI, R. A. Ueber einige Vögel Chile's. Briefliche Mittheilung an den Herausgeber. <*Arch. f. Naturg.*, 1855, (1), pp. 9–14.

Behandelt vier Arten—*Phoenicopterus andinus*, sp. n., p. 12; *Ardea cocoi, Xanthornus cayennensis, Circus macropterus.*

1855. SCLATER, P. L. List of a Collection of Birds received by Mr. Gould, from the Province of Quijos in the Republic of Ecuador. <*Ann. Mag. Nat. Hist.*, (2), xvi, 1855, pp. 279–285.

From *P. Z. S.*, May 9, 1854, pp. 109–115, pll., *q. v.*

1855. SCLATER, P. L. Descriptions of some New Species of Birds from Santa Fé di Bogota. <*P. Z. S.*, xxiii, 1855, pp. 109, 110, pll. (Aves) xcix–cii.

Nemosia albigularis, pl. xcix; *Pyriglena ellisiana*, pl. c; *Anthus bogotensis*, pl. ci, p. 109; *Otocorys peregrina*, pl. cii, p. 110.

1855. SCLATER, P. L. On the Birds received in collections from Sante Fé di Bogota. <*P. Z. S.*, xxiii, 1855, pp. 131–164, pll. (Aves) ciii, civ.

435 spp. briefly annotated. *Heterocnemis* (g. n.) *marginata*, p. 145; *Todirostrum gracilipes*, p. 149; *Calliste inornata* "Gould", p. 158, spp. nn.; pl. ciii, *Vireolanius icterophrys* Bp.; pl. civ, *Ampelion cinctus* (Tsch.).

1855–57. GUNDLACH, J., *and* CABANIS, J. Dr. J. Gundlach's Beiträge zur Ornithologie Cuba's. Nach Mittheilungen des Reisenden an Hr. Bez.-Dir. Sezekorn in Cassel; von Letzterem zusammengestellt. Mit Zusätzen und Anmerkungen geordnet vom Herausgeber. <*J. f. O.*, ii, 1854 (Extrah. 1855), pp. lxxvii–lxxxvii; iii, 1855, pp. 465–480; iv, 1856, pp. 1–16, 97–112, 337–352, 417–432; v, 1857, pp. 225–242.

An important review of the subject. This is the first of numerous articles upon Cuban birds, wholly or in part by Dr. Gundlach; it is chiefly to be regretted that in the beginning insufficient attention to precision of identification resulted in too many "additions and corrections". The present series constitutes a systematic synopsis of Cuban birds, the technicalities by Cabanis, the field-notes by Gundlach. *Hypomorphnus gundlachii*, p. lxxx; *Phyllomanes barbatulus*, p. 467; *Mimus gundlachii*, p. 470; *Teretistris*, p. 475; *Melittarchus*, p. 478; *Contopus*, p. 479; *Blacicus*, p. 480; *Aulanax*, p. 1; *Chordediles minor*, p. 5; *Corvus minutus* Gundl., p. 97; *Geotrygon caniceps* Gundl., p. 110; *Perissura*, p. 111; *Ocniscus*, p. 343; *Tryngites*, p. 418; *Notherhodius holostictus*, p. 426; *Limnopardalus*, p. 428; *Creciscus*, p. 428, are new genn. or spp., all but 2 by Cabanis; 251 spp. in all are treated. See especially *J. f O.*, ix, 1861, pp. 401–416; x, 1862, pp. 81–96, 177–191.

1856. BURMEISTER, H. Systematische Uebersicht | der Thiere Brasiliens, | welche | während einer Reise durch die Provinzen von Rio de | Janeiro und Minas geraës | zusammelt oder beobachtet | wurden | von | Dr. Hermann Burmeister, | o ö Prof. d. Zoologie und Direct. d. zool. Mus. der Universität zu Halle. | Zweiter Theil. | Vögel (Aves). | Erste [Zweite] Hälfte. | Berlin. 1856. | Druck und Verlag von Georg Reimer. 2 vols. 8vo. Vol. I, pp. x, 526 + 2. Vol. II, pp. xiv, 466.

Ornithology occupies the 2d and 3d vols. of this work (1st vol., Mammals, Berlin, 1854). It is an extensive and elaborate general treatise upon the subject.

1856. BURMEISTER, H. Erläuterungen zur Fauna Brasiliens, enthaltend Abbildungen und ausführliche Beschreibungen neuer oder ungenügend bekannter Thier-Arten. Von Dr. Herm. Burmeister. Berlin. 1856. Folio.

Not seen.

1856. DES MURS, P. O. Expédition dans les parties centrales de l'Amérique du Sud, de Rio Janeiro à Lima et de Lima au Para, etc. Par Fr. de Castelnau. Oiseaux, par P. O. Desmurs. 1856. 4to.

Not seen: title from Giebel. Compare 1855, same author.

1856. GOULD, J. Descriptions of Eight New Species of Birds from South America. <*Ann. Mag. Nat. Hist.*, (2), xvii, 1856, pp. 428–431.

From *P. Z. S.*, April 10, 1855.

1856. JARDINE, W. Contributions to Ornithology. No. II., Professor W. Jameson's Collections from the Eastern Cordillera of Ecuador continued.—Expedition from Quito to the Mountain Cayambe. <*Edinb. New Philos. Journ.*, new ser., iii, 1856, pp. 90–92, pl. iv.

Collector's notes of the locality. Writer's remarks on *Tetragonops ramphastinus* (pl. iv) and other birds.—*Arremon leucopterus*, n. s., p. 92.

1856. KINAHAN, [R. J.] Letter from Dr. Kinahan, dated Callao, August, 1855. <*Nat. Hist. Rev.* (*Pr. Soc.*), iii, 1856, pp. 24–26.

Referring, among other things, to birds, especially Albatrosses.

1856. LAWRENCE, G. N. Descriptions of New Species of Birds of the Genera Chordeiles, Swainson, and Polioptila, Sclater. <*Ann. Lyc. Nat. Hist. New York*, vi, 1856, pp. 165–169.

Chordeiles gundlachii, p. 165; *C. texensis*, p. 167; *Polioptila melanura*, p. 168.

1856. Pelzeln, A. v. Ueber neue u. wenig bekannte Arten der kais. ornithologischen Sammlung nebst Auszügen aus J. Natterers handschriftlichen Katalog über die von ihm in Brasilien gesammelten Species der Familien Trogonidae und Alcedinidae. < *Sitz.-Berichte Königl. Akad. Wiss. Wien*, xx, 1856, pp. 492 – —.
Not seen.

1856. Raimondi, A. Mémoire sur le huano des îles de Chincha et les oiseaux qui le produisent. < *Comp. Rend. de l'Acad. Sci. Paris*, xlii, 1856, pp. 735–738.

1856. Raimondi, A. [Résumé d'un mémoire sur le huano des îles de Chincha et les oiseaux qui le produisent.] < *Rev. et Mag. de Zool.*, viii, 1856, pp. 190, 191.

1856. Sclater, P. L. Descriptions of some [lately] New Species of Birds from Santa Fé di Bogota. < *Ann. Mag. Nat. Hist.*, (2), xviii, 1856, pp. 60, 61.
From *P. Z. S.*, June 26, 1855, pp. 109, 110.

1856. Sclater, P. L. On two [lately] new species of Birds from Santa Fé di Bogota. < *Ann. Mag. Nat. Hist.*, (2), xviii, 1856, pp. 186, 187.
From *P. Z. S.*, July 24, 1855, pp. 131–164.

1856. Sclater, P. L. Descriptions of eight new species of Birds from South America. < *Ann. Mag. Nat. Hist.*, (2), xviii, 1856, pp. 466–470.
Synallaxis castanea, p. 466; *Diglossopsis* (g. n.) *cœrulescens*, p. 467; *Diglossa indigotica* (J. & E. Verr. MS.), p. 467; *Anabates infuscatus*, *A. lineaticeps*, *Myiadestes venezuelensis*, p. 468; *Pipreola melanolœma*, *Chiroxiphia regina*, p. 469.

1856. Sclater, P. L. On some additional Species of Birds received in collections from Bogota. < *P. Z. S.*, xxiv, 1856, pp. 25–31, pll. (Aves) cxvi–cxix.
Synallaxis elegans, p. 25; *S. mœsta*, p. 26; *Anabates erythropterus*, p. 27; *Margarornis brunnescens*, p. 27, pl. cxvi; *Ochthoëca fumicolor*, p. 28, pl. cxvii; *Euscarthmus agilis*, p. 28, pl. cxviii; *Pipra coracina*, p. 29; *Conopophaga cucullata*, p. 29, pl. cxix; *Chlorospingus xanthophrys*, *C. lichtensteini*, p. 30; *Gallinago nobilis*, *Rallus semiplumbeus*, p. 31, spp. nn.

1856. Sclater, P. L. List of Mammals and Birds collected by Mr. Bridges in the vicinity of the town of David in the Province of Chiriqui in the State of Panama. < *P. Z. S.*, xxiv, 1856, pp. 138–143.
Of birds, 46 spp.—*Thamnophilus bridgesi*, p. 141; *Geotrygon chiriquensis*, p. 143, spp. nn.

1857. Bonaparte, C. L. Catalogue méthodique accompagné de notes des Oiseaux recueillis à Cayenne par M. E. Desplanches, chirurgien de la marine impériale, pendant la première campagne de l'aviso à vapeur, la Rapide, années 1854–1856. < *Bull. Soc. Linn. Normandie*, ii, 1857, pp. 29–40.

Of this piece I have not seen the original, but a MS. copy made by S. F. Baird, Nov. 21–26, 1863. It is an annotated list of 130 spp., a few of which are described, the rest merely given by name. *Planchesia* Bp. (type *Muscicapa fuliginosa* Gm., *fusca* Bodd.; P. E. 574, f. 1), p. 36, g. n.

1857. Gould, J. Description of a [lately] new Trogon and a [lately] new Odontophorus. < *Ann. Mag. Nat. Hist.*, (2), xix, 1857, pp. 110, 111.
From *P. Z. S.*, May 13, 1856.

1857. Hartlaub, G. Zur Ornithologie Südamerika's. < *J. f. O.*, 1857, v, pp. 36–50.
Burmeister's Thiere Bras.; Cassin's Birds of Gilliss' U. S. Naval Astron. Exped.; Des Murs' Castelnau's Voy. and Sclater's B. of Bogotá in *P. Z. S.*, 1855. In some measure a review of the works quoted, but rather a systematic summary of their results.

1857. Jardine, W. Contributions to Ornithology. No. IV. < *Edinb. New Philos. Journ.*, new ser., v, 1857, pp. 255–257.
Brief notes on 5 spp. from Quito.

1857. Philippi, R. A. Ueber einige Chilenische Vögel und Fische. < *Arch. f. Naturg.*, 1857, (1), pp. 262–272.
Rallus salinasi, p. 262; *Upucerthia atacamensis*, p. 263; *Totanus chilensis*, p. 264; *Culicivora fernandeziana*, p. 265.

1857. Sallé, A. Liste des Oiseaux rapportés et observés dans la République Dominicaine (ancienne partie Espagnole de l'Ile St. Domingue ou d'Haiti), pendant son voyage de 1849 à 1851. (Communicated by Philip Lutley Sclater.) < *P. Z. S.*, xxv, 1857, pp. 230–237.
61 spp., with field-notes; and critical comment by the communicator.

1857. Sclater, P. L. On some additional Species of Birds received in collections from Bogota. <*Ann. Mag. Nat. Hist.*, (2), xix, 1857, pp. 85–92.

From *P. Z. S.*, Feb. 26, 1856, pp. 25–31.

1857. Sclater, P. L. On a [lately] new Genus of Birds from Mexico. <*Ann. Mag. Nat. Hist.*, (2), xx, 1857, p. 470.

From *P. Z. S.*, July 14, 1857.

1857. Sclater, P. L. On two [lately] new Species of Birds from Bogota. <*Ann. Mag. Nat. Hist.*, (2), xx, 1857, p. 472.

From *P. Z. S.*, Jan. 27, 1857.

1857. Sclater, P. L. Further Additions to the List of Birds received in Collections from Bogota. <*P. Z. S.*, xxv, 1857, pp. 15–20.

52 spp., shortly annotated. *Anabates striaticollis*, *Sclerurus brunneus*, p. 17, spp. nn.

1857. Sclater, P. L. On a Collection of Birds transmitted by Mr. H. W. Bates from the Upper Amazon. <*P. Z. S.*, xxv, 1857, pp. 261–268.

79 spp., with annotation. *Eubucco aurantiicollis*, p. 267, sp. n., and synopsis of 7 spp. of that section of the genus *Bucco*. See 1863, and 1864, Bates, H. W.

1857. Sclater, P. L. Descriptions of Eleven New Species of Birds from Tropical America. <*P. Z. S.*, xxv, 1857, pp. 271–277, pl. (Aves) cxxx.

Campylorhynchus pardus, p. 271; *C. striaticollis*, p. 272; *Anabazenops guttulatus*, p. 272, pl. cxxx; *Synallaxis multostriata*, *Turdus fulviventris* Verr. MS., *T. ignobilis*, p. 273; *Cinclus leuconotus*, *Tyrannus atrifrons*, p. 274; *Melanoptila* (g. n.) *glabrirostris*, p. 275, woodcc.; *Lipaugus rufescens*, p. 276; *Tinamus castaneus*, p. 277.—Note that *Tyrannus atrifrons* Scl. = *Saurophaga bairdii* Gamb. = *Tyrannus bairdi* Scl.

1857. Taylor, W. J. Investigation on the Rock Guano from the Islands of the Caribbean Sea. <*Proc. Acad. Nat. Sci. Phila.*, ix, 1857, pp. 91–100.

Chemical analyses, etc.

1857. Thienemann, F. A. L. Ueber die von Dr. Gundlach eingesendeten Eier und Nester cubanischer Vögel. <*J. f. O.*, v, 1857, pp. 145–159.

Systematic description of the eggs, and in many cases of the nests, of 49 spp.

1858. Burmeister, H. Zur Fauna von Süd-America; Briefliches aus Mendoza. <*J. f. O.*, 1858, vi, pp. 152–162.

1858. De Verteuil, L. A. A. Trinidad: | Its Geography, | Natural Resources, Administration, Present | Condition, and Prospects. | By | L. A. A. De Verteuil, M. D. P. | — | [Quotation, 3 lines.] | — | London: | Ward and Lock, 158, Fleet street. | — | 1858. 1 vol. 8vo. pp. i–xii, 1–508.

Chapter III, Natural History, p. 100; Birds, by the author, pp. 118–126.—Appendix: An Essay on the Ornithology of Trinidad, by Antoine Léotaud, M. D. P., pp. 423–439, giving considerable information on the subject.

1858. Gundlach, J. Notes on some Cuban Birds, with Descriptions of three New Species. <*Ann. Lyc. Nat. Hist. New York*, vi, 1858, pp. 267–275. (Read June 29, 1857.)

Colaptes chrysocaulosus, *Culicivora lembeyi*, p. 273; *Teretistris fornsi*, p. 275, spp. nn.

1858. Lawrence, G. N. Observations of the Preceding Paper [*i. e.*, Notes on some Cuban Birds, with Descriptions of three New Species, by Gundlach]. <*Ann. Lyc. Nat. Hist. New York*, vi, 1858, pp. 275–277. (Read June 29, 1857.)

1858. Sclater, P. L. Description of a [lately] new genus and some [lately] new species of American Birds. <*Ann. Mag. Nat. Hist.*, (3), i, 1858, pp. 239, 240.

From *P. Z. S.*, 1857.

1858. Sclater, P. L. Descriptions of Eleven [lately] New Species of Birds from Tropical America. <*Ann. Mag. Nat. Hist.*, (3), i, 1858, pp. 302–308, figg.

From *P. Z. S.*, Dec. 8, 1857, pp. 271–277.

1858. Sclater, P. L. On [lately] new Species of Birds from the Rio Napo, in the Republic of Ecuador. < *Ann Mag. Nat. Hist.*, (3), ii, 1858, pp. 144–150.

From *P. Z. S.*, Jan. 26, 1858.

1858. Sclater, P. L. On [lately] new Species of Birds from the Rio Napo, in the Republic of Ecuador. <*Ann. Mag. Nat. Hist.*, (3), ii, 1858, p. 235.

From *P. Z. S.*, Jan. 26, 1858, pp. 50–77.

1858. SCLATER, P. L. Notes on a Collection of Birds received by M. Verreaux of Paris from the Rio Napo in the Republic of Ecuador. <*P. Z. S.*, xxvi, 1858, pp. 59–77, pl. (Aves) cxxxii.

174 spp.—*Anabates melanopezus*, p. 61; *Anabates pulvericolor*, *Synallaxis brunneicaudalis*, p. 62; *S. albigularis*, p. 63; *Malacocichla maculata*, p. 64; *Thamnophilus æthiops*, *T. capitalis*, p. 65; *Dysithamnus leucostictus*, *D. semicinereus*, p. 66; *Heterocnemis albigularis*, p. 67; *Conopophaga torrida*, *Grallaria flavirostris*, *G. fulviventris*, p. 68; *Agathopus* (n. g.) *micropterus*, p. 69; *Todirostrum picatum* *Cyclorhynchus æquinoctialis*, p. 70; *Platyrhynchus coronatus* "Verr.", *Elænia luteiventris*, p. 71; *Creurgops* (n. g.) *verticalis* Verr., pl. cxxxii, f. 2; *Euchætes* (g. n., "Verr.") *coccineus* "Verr.", p. 73, pl. cxxxii, f. 1; *Celeus verreauxi* "Malh.", p. 74, spp. nn.

1858. SCLATER, P. L. List of Birds [39 spp.] collected by Geo. Cavendish Taylor, Esq., in the Republic of Honduras. <*P. Z. S.*, xxvi, 1858, pp. 356–360.

1858. SCLATER, P. L. Characters of Five New Species of [Central and South] American Birds. <*P. Z. S.*, xxvi, 1858, pp. 446–449.

Euchlornis frontalis, p. 446; *Turdus leucauchen*, *Geothlypis speciosa*, p. 447; *Cyclorhis flavipectus*, *Cinclodus bifasciatus*, p. 448.

1858. SCLATER, P. L. List of Birds collected by Mr. Louis Fraser, at Cuenca, Gualaquiza and Zamora, in the Republic of Ecuador. <*P. Z. S.*, xxvi, 1858, pp. 449–461, pl. (Aves) cxlv.

87 spp., with critical and field-notes.—*Conirostrum fraseri*, p. 452; *Phrygilus ocularis*, p. 454, pl. cxlv; *Synallaxis antesiensis*, p. 457; *Tyrannulus chrysops*, p. 458.

1858. SCLATER, P. L. On the Birds collected by Mr. Fraser in the vicinity of Riobamba, in the Republic of Ecuador. <*P. Z. S.*, xxvi, 1858, pp. 549–556, pl. (Aves) cxlvi.

59 spp., with collector's and author's notes.—*Troglodytes solstitialis*, p. 550; *Catamenia homochroa*, p. 552; *Agriornis solitaria*, p. 553; *Elainia griseigularis*, pl. cxlvi, f. 1; *E. stictoptera*, pl. cxlvi, f. 2, p. 554, spp. nn.

1859. CASSIN, J. La Plata, | the Argentine Confederation, | and Paraguay. | Being a Narrative of the Exploration of the Tributaries of the | River La Plata and Adjacent Countries during the years | 1853, '54, '55, and '56, | under the orders of the United States Government. | By Thomas J. Page, U. S. N., | Commander of the Expedition. | With Map and Numerous Engravings. | New York: Harper & Brothers, Publishers, | Franklin Square. | 1859. 1 vol. 8vo. pp. i–xxii, 23–632, map and engs. >App. J. Notes on the Birds collected by the La Plata Expedition. By John Cassin. pp. 599–602.

Merely a list of the species collected, with a slight commentary of general character.

1859. EDITORIAL. [Letter from Mr. Fraser at Nanegal, Pichincha, relating to various birds.] <*Ibis*, i, 1859, pp. 208.

1859. EDITORIAL. [Correspondence from Mr. Fraser, in Ecuador.] <*Ibis*, i, 1859, pp. 332, 333.

1859. EDITORIAL. [Correspondence from O. Salvin, en route to Guatemala.] <*Ibis*, i, 1859, pp. 333, 334.

1859. EDITORIAL. [Annotated extracts of letters from Fraser, at Quito and Babahoyo, June and July.] <*Ibis*, i, 1859, pp. 462–464.

1859. EDITORIAL. [Extracts from a letter of O. Salvin, en route to, and in, Guatemala.] <*Ibis*, i, 1859, pp. 466–469.

1859. GOULD, J. List of Birds from the Falkland Islands, with Descriptions of the Eggs of some of the Species, from specimens collected principally by Captain C. C. Abbott, of the Falkland Islands Detachment. <*P. Z. S.*, xxvii, 1859, pp. 93–98.

38 spp.—*Gavia roseiventris*, p. 97, sp. n.

1859. GUNDLACH, J. Ornithologisches aus Briefen von Cuba. <*J. f. O.*, 1859, vii, pp. 294–299, 347–351.

Desultory notes on various species, in continuation of his previous more formal papers on the same subject in the same journal.

1859. MOORE, T. J. List of Mammals and Birds collected by Mr. Joseph Leyland in Honduras, Belize, and Guatemala. < *P. Z. S.*, xxvii, 1859, pp. 50-65, pll. (Aves) cl, cli.

125 spp. of birds, with brief field-notes.—*Ortyx leylandi*, p. 62, sp. n.

1859. NEWTON, A., *and* NEWTON, E. Observations on the Birds of St. Croix, West Indies, made, between February 20th and August 6th 1857 by Alfred Newton, and, between March 4th and September 28th 1858 by Edward Newton. (Part I [-IV].) < *Ibis*, i, 1859, pp. 59-69, 138-150, 252-264, 365-379, pll. i, xii.

Opens with sketch of the locality; finishes with sketch of the literature of the subject. Critical, descriptive, and field-notes on 64 spp., some of which are queried or left undetermined, and many bibliographical references. Woodcut of trachea of *Dendrocygna arborea*. Eight spp. of eggs figured on pl. xii. *Gymnoglaux nudipes*, pl. i.

1859. OSBURN, W. Notes on the Birds of Jamaica. < *Zoologist*, xvii, 1859, pp. 6368-6373.

"Contains graphic pictures of Jamaican Ornithology."

1859. OSBURN, W. Notes on the Bats and Birds of Jamaica. < *Zoologist*, xvii, 1859, pp. 6587-6594.

1859. OSBURN, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xvii, 1859, pp. 6658-6665.

1859. OSBURN, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xvii, 1859, pp. 6709-6721.

1859. OSBURN, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xvii, 1859, pp. 6753-6761.

These notes continued in same journal for 1860, *q. v.*

1859. SAGRA, RAMON DE LA. Énumération des espèces zoologiques et botaniques de l'île de Cuba utiles à acclimer dans autres régions analogues du globe. < *Bull. Soc. Acclim.*, vi, 1859, pp. 169-184.

Oiseaux, pp. 178-181.

1859. SCLATER, P. L. Characters of Five [lately] New Species of American Birds. < *Ann. Mag. Nat. Hist.*, (3), iii, 1859, pp. 443-446.

From *P. Z. S.*, Nov. 9, 1858, pp. 446-449.

1859. SCLATER, P. L. List of the First Collection of Birds made by Mr. Louis Fraser at Pallatanga, Ecuador, with Notes and Descriptions of New Species. < *P. Z. S.*, xxvii, 1859, pp. 135-147, pl. (Aves) cliv.

102 spp.—*Vireo josephæ*, p. 137, pl. cliv; *Nemosia ornata*, p. 138; *Anabates subularis*, *A. temporalis*, *Dysithamnus unicolor*, p. 141; *Formicivora caloptera*, *Pachyrhamphus homochrous*, *Cephalopterus penduliger*, p. 142, spp. nn.

1859. SCLATER, P. L. On some new or little-known Birds from the Rio Napo. < *P. Z. S.*, xxvii, 1859, pp. 440, 441.

9 spp.—*Buarremon castaneiceps*, *Grallaria nuchalis*, p. 441, spp. nn.

1859. SCLATER, P. L., *and* SALVIN, O. On the Ornithology of Central America. Part I [-III]. < *Ibis*, i, 1859, pp. 1-22, 117-138, 213-234, pll. iv, v.

Sketch of literature of the subject; 382 spp. with field-notes, mainly from Mr. Salvin's personal observations, and some synonymy. *Cistothorus elegans*, p. 8; *Cœreba lucida*, p. 14: *Xiphocolaptes elegans*, p. 118; *Sayornis aquatica*, p. 119; *Empidonax albigularis*, p. 122; *Elainia vilissima*, p. 122, pl. 4, f. 1; *E. placens*, p. 123, pl. 4, f. 2. Various eggs figured at pl. 5. Several species are left undetermined. Cf. *Ibis*, 1866, pp. 188-206.

1860. BREWER, T. M. [List of the Birds of Cuba, compiled from two lists furnished by Dr. Gundlach, of Havana.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1860, pp. 305-308.

Nominal list of 250 spp.

1860. BRYANT, H. [Notes on two Birds from Bogota.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1860, pp. 226, 227.

Turdus minimus Lafr.; *Vireo bogotensis*, sp. n., p. 227.

1860. BURMEISTER, H. Systematisches Verzeichniss der in den La Plata-Staaten beobachteten Vögelarten. < *J. f. O.*, viii, 1860, pp. 241-268.

261 spp.; the list shortly annotated and with a few references.

1860. Cassin, J. Catalogue of Birds collected during a survey of a route for a Ship Canal across, the Isthmus of Darien, by order of the Government of the United States, made by Lieut. N. Michler, of the U. S. Topographical Engineers, with notes and descriptions of new species. < *Proc. Acad. Nat. Sci. Phila.*, xii, 1860, pp. 132–144, 188–197.

144 spp.—*Monasa pallescens*, p. 134 (with synop. of 6 spp. of *Monasa*); *Celeus mentalis*, p. 137; *Orthogonys olivaceus*, *Pittasoma* (g. n.) *michleri*, p. 189; *Dendroica vieillotii*, p. 192 (with synop. of 5 allied spp.), spp. nn.

1860. Cassin, J. Catalogue of Birds from the Island of St. Thomas, West Indies, collected and presented to the Academy of Natural Sciences by Mr. Robert Swift. With Notes. < *Proc. Acad. Nat. Sci. Phila.*, xii, 1860, pp. 374–379.

27 spp., annotated.

1860. Editorial. [Notice of Mr. Fraser's Movements and Operations.] < *Ibis*, ii, 1860, pp. 192, 193.

1860. Frauenfeld, G. v. Ueber den Aufenthalt in Valparaiso und die Ausflüge daselbst, während der Weltfahrt der k. k. Fregatte Novara. < *Verh. (Abhandl.) k. k. zool.-bot. Ges. Wien*, x, 1860, pp. 635.

Grössten Theils ornithologischen Inhalts.

1860. Germain, M. F. Notes upon the Mode and Place of Nidification of some [69 spp.] of the Birds of Chili. < *Proc. Boston Soc. Nat. Hist.*, vii, 1860, pp. 308–316.

1860. Godet, T. L. Bermuda: | its History, Geology, Climate, Products, | Agriculture, Commerce, and Government | from the earliest period to the present time; | with hints to invalids. | By Theodore L. Godet, M. D. | London: | Smith, Elder and Co., 65, Cornhill. | — | M.DCCC.LX. 1 vol. 8vo. > Chap. XIII, pp. 193–198.

Treats of a very few spp., with running commentary.

1860. Lawrence, G. N. Description of a New Species of Bird of the Genus Phaeton, also of a New Species of Humming Bird of the Genus Heliopaedica. < *Ann. Lyc. Nat. Hist. New York*, vii, 1860, pp. 142–145.

Ph. flavo-aurantius, p. 142; *H. castaneocauda*, p. 145.

1860. Lawrence, G. N. Notes on some Cuban Birds, with Descriptions of New Species. < *Ann. Lyc. Nat. Hist. New York*, vii, 1860, pp. 247–275.

27 spp. critically treated; many observations of Dr. J. Gundlach's. *Accipiter gundlachi*, p. 252; *Antrostomus cubanensis*, p. 260, spp. nn.

1860. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Myiarchus and Phlogopsis. < *Ann. Lyc. Nat. Hist. New York*, vii, 1860, pp. 284–286.

M. Panamensis, p. 284; *Ph. McLeannani*, p. 285.

1860. Osburn, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xviii, 1860, pp. 6833–6841.

1860. Osburn, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xviii, 1860, pp. 6873–6880.

1860. Osburn, W. Notes on the Mountain Birds of Jamaica. < *Zoologist*, xviii, 1860, pp. 6925–6934.

Continued from same journal for 1859, *q. v.*

1860. Philippi, R. A. Ueber zwei vermuthlich neue Chilenischen Enten und über Fringilla barbata Mol. < *Arch. f. Naturg.*, 1860, (1), pp. 24–28.

Anas iopareia, p. 24. *Erismatura vittata*, p. 26. Synonymik von *Chrysomitris barbata*.

1860. Philippi, R. A., *and* Landbeck, L. Beschreibung zweier neuen Chilenischen Vögel aus den Geschlechtern Procellaria und Caprimulgus. < *Arch. f. Naturg.*, 1860, (1), pp. 279–284.

Caprimulgus andinus, p. 279; *Thalassidroma segethi*, p. 282.

1860. Salvin, O. [Editorial Extracts from Letters from Dueñas, Guatemala, Aug. 30 and Oct. 25, 1859.] < *Ibis*, ii, 1860, pp. 99–101.

1860. Salvin, O. [Letters from Vera Paz, relating to various Birds, with a comparative list of the Trochilidæ of Dueñas and Coban.] <*Ibis*, ii, 1860, pp. 193–197.

1860. Salvin, O., *and* Sclater, P. L. Contributions to the Ornithology of Guatemala. <*Ibis*, ii, 1860, pp. 28–45, pl. iii, pp. 272–278, 396–402, pl. xiii.

80 + 39 + 52 = 171 spp. The first article contains species not mentioned in the authors' paper on the same subject in *Ibis*, vol. i, 1859, with the whole of Salvin's field-notes on his first collection; the second, 39 more new to the fauna of the country; the third, 52 more, both with Salvin's field-notes. *Thryothorus pleurostictus*, p. 30; *Elainia subpagana*, p. 36; *Malacoptila veraepacis*, p. 40; *Chrysotis guatemalæ* "Hartl.", p. 46, spp. nn. The pll. represent *Chætura rutila* and *Pionus haematotis*. Cf. *Ibis*, 1866, pp. 188–206.

1860. Sclater, P. L. Descriptions of [lately] New Species of Birds collected by Mr. Louis Fraser at Pallatanga, Ecuador. <*Ann. Mag. Nat. Hist.*, (3), v, 1860, pp. 427–430.

From *P. Z. S.*, April 12, 1859, pp. 135–147, *q. v.*

1860. Sclater, P. L. On two [lately] new Birds from the Rio Napo. <*Ann. Mag. Nat. Hist.*, (3), v, 1860, p. 498.

From *P. Z. S.*, Nov. 22, 1859, pp. 440, 441, *q. v.*

1860. Sclater, P. L. On the Eggs of Two Raptorial Birds from the Falkland Islands. <*Ibis*, ii, 1860, pp. 24–28, pl. i.

Pl. i, fig. 1, *Milvago australis*; fig. 2, *Cathartes* sp., wrongly identified as *Milvago australis*; fig. 3, *Buteo erythronotus*.

1860. Sclater, P. L. List of Additional Species of Birds collected by Mr. Louis Fraser at Pallatanga, Ecuador; with Notes and Descriptions of New Species. <*P. Z. S.*, xxviii, 1860, pp. 63–73.

64 spp.—*Thryothorus mystacalis*, p. 64; *Grallaria erythrops*, *G. regulus*, p. 66; *Myiarchus nigriceps*, *Platyrhynchus albogularis*, *Eupsilostoma pusillum*, p. 68; *Tyrannulus flavidifrons*, *T. cinereiceps*, p. 69, spp. nn.

1860. Sclater, P. L. List of Birds collected by Mr. Fraser in the vicinity of Quito, and during excursions to Pichincha and Chimborazo; with Notes and Descriptions of New Species. <*P. Z. S.*, xxviii, 1860, pp. 73–83, pl. (Aves) clix.

52 spp.—*Thryothorus eophrys*, p. 74; *Oreomanes* (n. g.) *fraseri*, p. 75, fig. pl. clix; *Cinclodes excelsior*, *C. albidiventris*, p. 77; *Agriornis andecola*, p. 78; *Attagis chimborazensis*, p. 82, spp. nn.

1860. Sclater, P. L. List of Birds collected by Mr. Fraser in Ecuador, at Nanegal, Calacali, Perucho, and Puellaro; with Notes and Descriptions of New Species. <*P. Z. S.*, xxviii, 1860, pp. 83–97, pl. (Aves) clx.

130 spp.—*Thryothorus nigricapillus*, *Basileuterus semicervinus*, p. 84; *Oryzoborus æthiops*, p. 88; *Pipreola jucunda*, p. 89; *Pipra deliciosa*, p. 90, figg.; *Masius coronulatus*, p. 91; *Cyclorhynchus fulvipectus*, p. 92; *Myiobius villosus*, p. 93, spp. nn.

1860. Sclater, P. L. [Announcement of the arrival of some Mammals and Birds from British Honduras.] <*P. Z. S.*, xxviii, 1860, p. 206.

1860. Sclater, P. L. List of Birds collected by Mr. Fraser at Babahoyo in Ecuador, with Descriptions of New Species. <*P. Z. S.*, xxviii, 1860, pp. 272–290, pl. (Aves) cxliv.

134 spp.—*Geothlypis semiflava*, p. 273; *Cyclorhis virenticeps* (pl. cxliv), *Saltator flavidicollis*, p. 272; *Embernagra chrysomus*, p. 275; *Spermophila ophthalmica*, *Oryzoborus occidentalis*, *Cassiculus flavicrissus*, p. 276; *Xiphorhynchus thoracicus*, p. 277; *X. pusillus* (ex Nova Granada), p. 278; *Formicivora consobrina*, *Cercomacra maculosa*, *Pachyrhamphus spodiurus*, p. 279; *Attila torridus*, *Fluvicola atripennis*, p. 280; *Megarhynchus chrysogaster*, *Tyrannus niveigularis*, *Myiarchus phæocephalus*, p. 281; *Cyclorhynchus subbrunneus*, *Muscivora occidentalis*, p. 282; *Bucco leucocrissus*, p. 284; *Dryocopus fuscipennis*, p. 286, spp. nn.

1860. Sclater, P. L. List of Birds collected by Mr. Fraser at Esmeraldas, Ecuador, with Descriptions of New Species. <*P. Z. S.*, xxviii, 1860, pp. 291–298.

93 spp.—*Cyphorinus phæocephalus*, p. 291, sp. n.

1860. Sclater, P. L. Catalogue of Birds of the Falkland Islands. <*P. Z. S.*, xxviii, 1860, pp. 382–391, pl. (Aves) clxxiii. (Cf. op. cit., 1861, p. 45; 1864, p. 73.)

57 spp., with brief field-notes. *Chloephaga rubidiceps*, p. 387, pl. clxxiii, sp. n.

1860. Sclater, P. L. Characters of Ten New Species of American Birds. <*P. Z. S.*, xxviii, 1860, pp. 461–467.

Campylorhynchus nigriceps, p. 461; *C. gularis*, *Vireo modestus*, p. 462; *Vireosylvia cobanensis*, p. 463; *Myiobius flavicans*, *M. pulcher*, *M. crypterythrus*, p. 464; *M. cryptoxanthus*, p. 465; *Heteropelma amazonum*, *H. flavicapillum*, p. 466. The article includes synopses of the species of *Myiobius* and *Heteropelma*.

1860. Sclater, P. L., *and* Salvin, O. Characters of Eleven [lately] New Species of Birds discovered by Osbert Salvin in Guatemala. <*Ann. Mag. Nat. Hist.*, (3), vi, 1860, pp. 215–217.

From *P. Z. S.*, May 22, 1860, pp. 298–301.

1860. Sclater, P. L., *and* Salvin, O. Characters of Eleven New Species of Birds discovered by Osbert Salvin in Guatemala. <*P. Z. S.*, xxviii, 1860, pp. 298–301.

Polioptila albiloris, *Dendrœca chrysoparia*, p. 298; *Hylophilus cinereiceps*, *Glyphorhynchus pectoralis*, *Thamnistes anabatinus*, *Platyrhynchus cancrominus*, p. 299; *Tyrannulus semiflavus*, *Heteropelma verœpacis*, *Lipaugus holerythrus*, *Pionus hœmatotis*, *Corethrura rubra*, p. 300.

1860. Taylor, G. C. On Birds collected or observed in the Republic of Honduras, with a short Account of a Journey across that country from the Pacific to the Atlantic Ocean. <*Ibis*, ii, 1860, pp. 10–24, 110–122, 222–228, 311–317.

Description of the region and field-notes on 96 spp.

1861. Abbott, C. C. [Field-] Notes on the Birds [66 spp.] of the Falkland Islands. <*Ibis*, iii, 1861, pp. 149–167.

Cf. *P. Z. S.*, 1860, p. 382, and Feb. 12, 1861, p. 45; also, *Ibis*, 1860, p. 336.

1861. Albrecht, R. Zur Ornithologie Cuba's. Nach Geo. N. Lawrence und J. Gundlach mitgetheilt. <*J. f. O.*, 1861, ix, pp. 198–215.

Ann. Lyc. Nat. Hist. N. Y., *passim*, 1855–60. 28 spp.

1861. Bolle, C. Guano-Gewinnung auf den Chincha-Inseln. <*J. f. O.*, ix, 1861, pp. 387–390.

Aus *Cuzco und Lima* von Clements Markham, London, 1856.

1861. Burmeister, H. Reise durch die La Plata-Staaten, mit besonderer Rücksicht auf die physische Beschaffenheit und den Culturzustand der Argentinischen Republik. Ausgeführt in den Jahren 1857–61. Zweiter Band. Halle. 1861.

Not seen. Said to contain lists of mammals, birds, etc. Cf. *Ibis*, 1863, pp. 357, 358; *J. f. O.*, viii, 1860, pp. 241–268.

1861. Editorial. [Notes on some birds of the Falkland Islands.] <*Ibis*, iii, 1861, p. 312.

1861. Gundlach, J. Tabellarische Uebersicht aller bisher auf Cuba beobachteten Vögel. <*J. f. O.*, 1861, ix, pp. 321–349.

With tabular statement of periods of migration and breeding, comparative abundance or scarcity, and general geographical distribution, in seven categories. 249 spp.

1861. Lawrence, G. N. Descriptions of three new new species of Birds [from Middle America]. <*Ann. Lyc. Nat. Hist. New York*, vii, 1861, pp. 303–305.

Grallaria perspicillata, p. 303; *Polioptila superciliaris*, p. 304; *Chlorostilbon nitens*, p. 305.

1861. Owen, Robert. On the Nesting of some Guatemalan Birds. With remarks by Osbert Salvin, . . . <*Ibis*, iii, 1861, pp. 58–69, pl. ii.

23 spp. Field-notes; desc. of nests and eggs by O. Salvin; 5 spp. eggs figured on pl. ii.

1861. Philippi, [R. A.], *and* Landbeck, [L.] Descripcion. De algunas especies nuevas de pájaros [chilenos]. <*Anal. Univ. Chile*, xviii, 1861, pp. 731–734.

Upucerthia albiventris, p. 731; *Larus frobenii*, p. 732; *L. cinereo caudatus*, p. 733.—These three species are also described in *Arch. für Naturg.* of same year.

1861. Philippi, [R. A.], *and* Landbe[c]k, [L.] Descripcion de unas nueve especies de pájaros peruanos del Museo Nacional. <*Anal. Univ. Chile*, xix, Nov., 1861, pp. 609–622.

Synallaxis striata, p. 609; *Chlorospiza erythronota*, p. 610; *Pitylus albociliaris*, p. 611; *Sterna lorata*, p. 612; *S. Trobeni* [sic!], p. 613 (commonly quoted *frobeeni* or *frobeni*) ("fué muerta en setiembre de 1851 por el finado Trobén"); *S. comata*, p. 614; *Leistes albipes*, p. 616; *Recurvirostra andina*, p. 618; *Dasycephala albicauda*, p. 618.—Cuatro especies del jénero *Pepoaza* d'Orb.,—*livida*, *andecola*, *montana*, *maritima*.—Noticias sobre el modo de vivir de las dos especies chilenas de *Dasycephala*.

1861. Philippi, R. A., *and* Landbeck, L. Neue Wirbelthiere von Chile. <*Arch. f. Naturg.*, (1), 1861, pp. 289–301.

B. Aves: *Upucerthia albiventris*, p. 290; *Larus frobenii*, p. 292; *L. cinereo-caudatus*, p. 293.

1861. Sallé, A. Liste d'Oiseaux | a vendre | provenant des chasses faites en Amérique | par M. Auguste Sallé, | Rue Guy-de-la-Brosse, 13, a Paris. | Paris, mars 1861 | 8vo pamph. pp. 7.

Ces oiseaux sont en peaux bien préparées; ils ont été mentionnés par Bonaparte dans les *Compt. Rend.*, et ils ont aussi fourni la matière de plusieurs articles publiés par Sclater dans les *P. Z. S.*, 1856, '57, '58, '59 et '60. Ils proviennent du Mexique, de l'île de St. Domingue, de la Vénézuela et de l'Amérique du Nord.

1861. Salvin, O. A List of [28] Species to be added to the Ornithology of Central America. <*Ibis*, iii, 1861, pp. 351–357.

Cf. same author's and P. L. Sclater's several articles on same subject in same journal, previous numbers. Cf. *Ibis*, 1866, pp. 188–206.

1861. Salvin, O. Descriptions of three new species of Birds from Guatemala. <*P. Z. S.*, xxxix, 1861, pp. 202, 203.

Cyphorinus philomela, *Embernagra chloronota*, p. 202; *Aphantochroa roberti*, p. 203.

1861. Salvin, O. Descriptions of three [lately] new species of Birds from Guatemala. <*Ann. Mag. Nat. Hist.*, (3), viii, 1861, pp. 334, 335.

From *P. Z. S.*, May 14, 1861, pp. 202, 203, *q. v.*

1861. Sclater, P. L. Characters of Eight [lately] New Species of American Birds. <*Ann. Mag. Nat. Hist.*, (3), vii, 1861, pp. 327–330.

From *P. Z. S.*, Dec. 11, 1860.

1861. Sclater, P. L. Additions and Corrections to the List of the Birds of the Falkland Islands [in P. Z. S., 1860, pp. 382–391]. <*P. Z. S.*, xxxix, 1861, pp. 45–47. (See *P. Z. S.*, 1864, p. 73.)

11 spp. List of 8 spp. of Falkland *Spheniscidæ*.

1861. Sclater, P. L. List of a Collection of Birds made by the late Mr. Osburn in Jamaica, with notes. <*P. Z. S.*, xxxix, 1861, pp. 69–82, pl. xiv and woodcc.

92 spp.—*Laletes osburni*, g. sp. n., p. 72, pl. xiv, f. 2; *Siphonorhis*, g. n., p. 77; *Elainia fallax*, sp. n., p. 76.

1861–62. Gundlach, J. Zusätze und Berichtigungen zu den „Beiträgen zur Ornithologie Cuba's". (In den früheren Jahrgängen dieses Journals.) <*J. f. O.*, ix, 1861, pp. 401–416; x, 1862, pp. 81–96, 177–191.

Reviews a large number of his species, mainly upon information acquired through Baird, Cassin and Lawrence's *Birds of North America*. In using Dr. Gundlach's work, it is essential to consult this article in connection with the previous ones. See 1855–57, Gundlach, J.

1861–62. Sclater, P. L. Catalogue | of | a Collection | of | American Birds | belonging to | Philip Lutley Sclater, M. A., Ph. D., F. R. S., | Fellow of Corpus Christi College, Oxford; | Secretary to the Zoological Society of London; | Editor of "The Ibis." | [Vignette. Motto.] | London: | N. Trübner and Co., Paternoster Row. | [1861,] 1862. 1 vol. 8vo. pp. xvi, 338, with or without pll. xx.

The collection consisted of about 4,100 specimens of 2,170 species of American *Passeres*, *Fissirostres*, and *Scansores*, 386 being type-specimens. The text consists of a copious synonymy, with enumeration of specimens of each species by locality whence procured, and some little running commentary in footnotes.

Phœnicothraupis erythrolæma Bp.?, p. 83; *Tachyphonus cristatellus*, p. 86; *Paroaria cervicalis*, p. 108; *Chrysomitris uropygialis*, p. 125; *Icterus xanthornus*, p. 131; *Quiscalus æquatorialis*, p. 140; *Q. assimilis*, p. 141; *Glyphorhynchus major*, p. 161; *Thamnophilus strenuus*, p. 173; *Pachyrhamphus cinereiventris*, p. 242; *P. dorsalis*, p. 243; *Momotus swainsoni*, p. 261; *Bucco napensis*, p. 269; *Chelidoptera brasiliensis*, p. 275; *Chloronerpes malherbii*, p. 338; *Conurus propinquus*, p. 346, are spp. nn. indicated in footnotes. *Hyetornis*, g. n., p. 321, and probably some other generic names, are here used for the first time without particular notice of the fact. A list of the author's publications from 1850 to 1861 inclusive, 165 in number, is appended.

The completed vol. dates 1862, but some copies of the sheets were distributed as printed; date of printing is on each signature, according to which the first twelve (to p. 192) appeared in 1861, the rest in 1862. The book is found with or without the plates; perfect copies, with the plates, are scarce. These are as follows:—Pl. I, *Turdus pinicola*. II, *Cinclus leuconotus*. III, *Campylorhynchus jocosus*. IV, *Thryothorus pleurostictus*. V, *Hylophilus ochraceiceps*.

1861-62. Sclater, P. L.—Continued.

VI, *Diglossa indigotica.* VII, *Dacnis egregia.* VIII, *D. pulcherrima.* IX, *Calliste cyanotis.* X, *Chlorospingus castaneicollis.* XI, *Embernagra chrysoma.* XII, *Sclerurus mexicanus.* XIII, *Synallaxis castanea.* XIV, *Anabazenops subalaris.* XV, *Myrmotherula ornata.* XVI, *Formicivora boucardi.* XVII, *Platyrhynchus coronatus.* XVIII, f. 1, *Oncostoma cinereigulare;* f. 2, *Todirostrum schistaceiceps.* XIX, *Masius coronulatus.* XX, *Chiroxiphia regina.*

1861-63. Lawrence, G. N. Catalogue of a Collection of Birds, made in New Grenada, by James McLeannan, Esq., of New York, with Notes and Descriptions of New Species. Part I. < *Ann. Lyc. Nat. Hist. New York*, vii, 1861, pp. 288–302 (Jan., 1861); Part II, pp. 315–334 (June, 1861); Part III, pp. 461–479 (Feb., 1862); Part IV, viii, pp. 1–13 (May, 1863).

I. *Leucopternis semiplumbeus*, p. 288; *Chlorostilbon assimilis*, p. 292; *Pachyramphus cinnamomeus*, p. 295; *Tachyphonus cassinii*, p. 297; *Capito maculicoronatus*, p. 300; *Corethrura albigularis*, p. 302. II. *Thryothorus galbraithii*, p. 320; *Th. castaneus*, p. 321; *Hylophilus pusillus*, p. 323; *H. aurantiifrons*, p. 324; *H. viridiflavus*, p. 324; *Myiarchus brunneiceps*, p. 327. III. *Syrnium lineatum*, p. 462; *Trogon concinnus*, p. 463; *Dacnis venusta*, p. 464; *Automolus pallidigularis*, p. 465; *Dendrocincla olivacea*, p. 466; *Dendrornis lachrymosus*, p. 467; *Myrmetherula fulviventris*, p. 468; *Ramphocænus semitorquatus*, p. 469; *Myrmeciza ferruginea*, p. 470; *Turdus obsoletus*, p. 470; *Attila sclateri*, p. 470; *Empidonax griseigularis*, p. 471; *Leptopogon flavovirens*, p. 472; *Psittovius subcœruleus*, p. 475; *Pionius coccinicollaris*, p. 475; *Chloronerpes callopterus*, p. 476. IV. *Petrochelidon albilinea*, p. 2; *Cyphorinus lawrencii* Scl. MS., p. 5; *Pithys bicolor*, p. 6; *Rhynchocyclus flavo-olivaceus*, p. 8; *Lipaugus albogriseus*, p. 9; *Spermophila semicollaris*, p. 10; *Spermophila schistacea*, p. 10, spp. nn. 415 spp. (as numbered, but some of the Nos. duplicated) treated, with various critical notes, besides the descriptions of new species. The reception of collections at different times causes the several lists to be successive additions, and gives occasion for some rectifications in later lists of earlier identifications. The sequence of the species is systematic in each of the four lists, but not continuously so throughout the whole.

1861-69. Cabanis, J. Uebersicht der im Berliner Museum befindlichen Vögel von Costa Rica. < *J. f. O.*, viii, 1860, pp. 321–336 (pub. Jan., 1861), 401–416 (pub. May, 1861); ix, 1861, pp. 1–11, 81–96, 241–256; x, 1862, pp. 161–176, 321–336; xvii, 1869, pp. 204–213.

None published till Jan., 1861, though the first two portions appear in the Nos. for Sept.–Nov., 1860. Based on the investigations of Drs. v. Frantzius, Hoffmann, and Ellendorf. This important systematic review of Costa Rican birds is full of critical matter, and gives many new generic and specific names, as follows:—

Pezopetes, p. 415; *Amaurospiza*, p. 3; *Callispiza* (pro *Calliste*), p. 87; *Acrocompsa*, p. 88; *Panterpe*, p. 164; *Ceophloeus*, p. 176, gen. nn.

[Jan., 1861] *Catharus frantzii*, *Turdus plebejus*, p. 323; *T. nigrescens*, p. 324; *Rhimamphus ruficeps*, p. 326; *Compsothlypis gutturalis*, p. 329; *Trigliphidia callophrys*, p. 331; *Phonasca luteicapilla*, p. 332; *P. gracilis*, p. 333; *P. humilis*, p. 334; *P. gnatho*, p. 335; *P. saturata*, p. 336. [May, 1861] *Polioptila* ——— (not named), p. 401; *Ptilogonys caudatus*, p. 402; *Cyclorhis subflavescens*, p. 405; *Troglodytes intermedius*, p. 407; *Thryothorus modestus*, p. 409; *Diglossa plumbea*, p. 411; *Melozone leucotis*, p. 413; *Pezopetes capitalis*, p. 415. [1861] *Amaurospiza concolor*, p. 3 (*Cyanospiza minor*, p. 4); *Sporophila leucopsis*, *S. ochropyga* (Licht., Mus. Ber.), p. 5; *S. hoffmanni*, p. 6 (*Lampropsar warczwiczi*, p. 83); *Phoenicothraupis fuscicauda*, p. 86; *Callispiza frantzii*, p. 87; *Atticora cyanophæa*, p. 92; *Myrmornis hoffmanni*, p. 95; *Thamnophilus punctatus*, p. 241; *Thripobrotus compressus*, p. 243; *Myiarchus nigricapillus*, p. 250. [1862] *Hemithylaca hoffmannii*, p. 163; *Panterpe insignis*, p. 164; *Chlorolampis salvini*, p. 164; *Malacoptila costaricensis*, p. 172; *Trogon tenellus*, p. 173; *Chloronerpes uropygialis*, p. 321; *Centurus hoffmannii*, p. 322 (*C. polygrammicus*, p. 326); *Ramphastos approximans*, p. 333, spp. nn.

Synopsis of 6 spp. of *Pyrrhocorax*, 4 spp. of *Chloronerpes*, 10 spp. of *Centurus*, and various less formal special criticisms.

[1869] This portion treats of 8 spp. of *Glaucidium* and of various *Raptatores* and other birds. *Asturina polionota*, p. 208; *Ortalida frantzii*, p. 211; *Crypturus modestus*, p. 212, spp. nn.

1862. Albrecht, R. Zur Ornithologie von Jamaica. Nach Osburn, Sclater und Gosse zusammengestellt. < *J. f. O.*, x, 1862, pp. 192–207.

Compilation from the sources named. 191 spp.

1862. Editorial. [O. Salvin's and F. Godman's Operations in Guatemala.] < *Ibis*, iv, 1862, p. 195.

1862. Lawrence, G. N. Descriptions of Six New Species of Birds [of Middle America], of the Families Charadridæ [sic], Trochilidæ, and Caprimulgidæ. < *Ann. Lyc. Nat. Hist. New York*, vii, 1862, pp. 455–460.

Aegialitis tenuirostris, p. 455; *Thalurania luciæ*, p. 456; *Chlorostilbon insularis*, p. 457; *Trochilus aurigularis*, p. 458; *Sapphironia luminosa*, p. 458; *Stenopsis maculicaudus*, p. 459.

1862. Lawrence, G. N. Descriptions of Six New Species of Birds from the Isthmus of Panama. < *Ibis*, iv, 1862, pp. 10–13.

Heleodytes albo-brunneus, p. 10; *Pitangus albovittatus*, *Myozetetes granadensis*, p. 11; *Todirostrum olivaceum*, *Tyranniscus parvus*, *Tyrannulus brunneicapillus*, p. 12.

1862. Sallé, A., *and* Parzudaki, E. Nº 2. Avril 1862. | Catalogue | des | Oiseaux du Mexique | composant | les collections de M. A. Sallé, | Rue Guy-de-la-Brosse, 13, a Paris, | et | de M. E. Parzudaki, Rue du Bouloi, 2. | — | [Paris: Impr. de Mme. Ve. Bouchard-Huzard, Rue de l'Éperon, 5. 1862.] 8vo. pp. 7.

Ces oiseaux sont en peaux bien préparées et ont été mentionnés par Bonaparte dans les *Comptes Rendus* de l'Institut; ils ont aussi fourni la matière de plusieurs notices publiés par Sclater dans les *P. Z. S.*, 1856–1860.

1862. Salvin, O. [Letter on Birds from Dueñas, Guatemala.] < *Ibis*, iv, 1862, p. 96.

1862. Sclater, P. L. On some Birds recently Collected by M. Boucard in Southern Mexico. < *P. Z. S.*, xxx, 1862, pp. 18–20, pl. iii.

16 spp.—*Harporhynchus ocellatus*, p. 18, pl. iii, sp. n.

1862. Sclater, P. L. Characters of Nine New Species of Birds received in collections from Bogota. < *P. Z. S.*, xxx, 1862, pp. 109–112, pl. xi.

Turdus ephippialis, p. 109; *Hylophilus ferrugineifrons*, *Chlorospingus oleagineus*, *Philydor panerythrus*, p. 110; *Leptopogon erythrops*, *L. pœcilotis*, *Myiobius bellus*, p. 111; *Empidochanes pœcilurus*, *Urochroma stictoptera* (pl. xi), p. 112.

1862. Sclater, P. L. Characters of Nine [lately] New Species of Birds received in collections from Bogota. < *Ann. Mag. Nat. Hist.*, (3), x, 1862, pp. 309–313.

From *P. Z. S.*, March 25, 1862, pp. 109–112, *q. v.*

1862–63. Natterer, J., *ed.* Pelzeln, A. v. Handschriftliche Notizen [über die Cathartidæ und Falconidæ Brasiliens]. < *Verh.* (*Abh.*) *k.-k. zool.-bot. Ges. Wien*, xii, 1862, pp. 171–192; xiii, 1863, pp. 631–636.

Notizen über 25 Arten der hier besprochenen Gruppen, als Anhang zu Pelzelns ,,Die Geier und Falken der Kaiserl. Ornith. Sammlung'', tomm. citt. pp. 123–192, 585–636.

1863. [Baird, S. F.] List of the described Birds of Mexico, Central America, and the West Indies not in the collection of the Smithsonian Institution. January 1, 1863. 8vo, double column, pp. 6.

Names only.

1863. Bates, H. W. The Naturalist on the River Amazons; a record of adventures, habits of animals, sketches of Brazilian and Indian life, and aspects of Nature under the Equator during eleven years of travel. By Henry Walter Bates. London. Murray, 1863. 2 vols. 8vo. figg.

Orig. ed., not seen: see 2d ed., 1864. Numerous ornithological passages, and some of the woodcuts. Mr. Bates's collection of birds, upwards of 400 species, is said to have been dispersed with only imperfect record (*P. Z. S.*, 1857, pp. 261–268, *q. v.*) of names, dates, or localities. Cf. *Ibis*, 1863, pp. 462, 463; *Nat. Hist. Rev.*, 2d ser., iii, 1863, pp. 385–389; *Zoologist*, xxi, 1863, pp. 8537–8554.

1863. Editor. The Naturalist on the Amazons. < *Nat. Hist. Rev.*, 2d ser., iii, 1863, pp. 385–389.

Editorial review of H. W. Bates's work.

1863. Lawrence, G. N. Descriptions of Eight New Species of Birds from the Isthmus of Panama. < *Ibis*, v, 1863, pp. 181–184.

Cotyle uropygialis, *Dendrornis nana*, *Formicivora virgata*, *Myrmelastes corvinus*, *Myiozetetes marginatus*, *Myiobius atricaudus*, *Platyrhynchus superciliaris*, *Celeus squamatus*.

1863. Lawrence, G. N. Descriptions of New Species of Birds of the Families Vireonidæ and Rallidæ. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 106, 107.

Vireo atripennis, *Corethrura guatemalensis*, p. 106; *Aramides axillaris*, p. 107.

1863. Newman, E. Notices of New Books. < *Zoologist*, xxi, 1863, pp. 8537–8554.

Extended notice of Bates's "The Naturalist on the River Amazons".

1863. Pelzeln, A. v. Ueber vier von Natterer in Brasilien gesammelte noch unbeschriebene Vögelarten. < *Verh. k.-k. zool.-bot. Gesellsch. Wien*, xiii, Oct. 10, 1863, pp. 1125–1128.

Syrnium superciliare, p. 1125; *Strix superciliaris*, *Tinamus guttatus*, p. 1126; *T. erythropus* p. 1127.

1863. Philippi, R. A., *and* Landbeck, L. Beiträge zur Fauna von Peru. < *Arch. f. Naturg.*, —, 1863, pp. 118 – —.

Synallaxis striata; *Chlorospiza erythronota*; *Pitylus albociliaris*; *Sterna lorata*; *S. frobeenii*; *S. comata*; *Leistes albipes*; *Recurvirostra andina*; *Dasycephala* (*Agriornis*) *albicauda*.—Cf. *Ibis*, 1864, pp. 120, 121. (Seen, but transcript defective; volume missing from set when wanted for revision.)

1863. Salvin, O. [Letter on his operations in Guatemala; suggests name of sancti jeromæ for a perhaps new Panyptila.] < *Ibis*, v, 1863, p. 239.

1863. Salvin, O. Descriptions of Thirteen New Species of Birds discovered in Central America by Frederick Godman and Osbert Salvin. < *P. Z. S.*, xxxi, 1863, pp. 186–192, pll. (Aves) xxiii, xxiv, woodc.

Thryothorus petenicus, *Dendrœca niveiventris* (pl. xxiv, f. 2), p. 187; *Cardellina versicolor* (pl. xxiv, f. 1), *Vireo pallens*, *V. ochraceus*, *V. semiflavus*, p. 188; *Petrochelidon littorea*, *Spizella pinetorum*, *Ammodromus petenicus*, *Junco alticola*, p. 189; *Chrysomitris atriceps*, *Elaënia arenarum*, *Panyptila sancti hieronymi* (pl. xxiii), p. 190 (cf. *Ibis*, 1863, p. 239).

1863–64. March, W. T. Notes on the Birds of Jamaica. With Remarks by S. F. Baird. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 150–154, 283–304; xvi, 1864, pp. 62–72.

An extended commentary on the habits, etc., of numerous species, with some technic by S. F. Baird. *Mimus hillii*, p. 291, sp. n. Cf. *Ibis*, 1864, p. 404.

1864. Bates, H. W. The | Naturalist on the River | Amazons. | A record of adventures, habits of animals, sketches of | Brazilian and Indian Life, and aspects of nature under | the Equator, during eleven years of travel. | By Henry Walter Bates. | [Cut.] | Pelopæus Wasp building nest. | Second Edition. | With map and illustrations. | London: | John Murray, Albemarle street. | 1864. | [The Right of Translation is reserved.] | 1 vol. 16mo. pp. iii–xii, 1–466, map, pll., and cuts (40 illusts. in all).

Orig. ed. 1863, *q. v.* This work is pleasantly ornithological here and there throughout, and includes figures of several birds. Chap. XII, pp. 388–426, Animals of the neighbourhood of Ega. Birds, pp. 402–412; especially full on *Rhamphastidæ*.

1864. Cassin, J. Notes on some Species of Birds from South America. < *Proc. Acad. Nat. Sci. Phila.*, xvi, 1864, pp. 286–288, pll. i–iv.

Critical; 7 spp.—Pl. I, f. 1, *Calliste laviniæ*; f. 2, *C. hannahiæ*, sp. n., p. 287. Pl. II, *Orthogonys olivaceus*. Pl. III, *Pittasoma michleri*. Pl. IV, *Monasa pallescens*.

1864. Landbeck, L. Contribuciones a la Ornitolojía de Chile. < *Anales de la Universidad de Chile*, tom. xxiv, No. 4, April, 1864, pp. 336–348.

The original Spanish version of the paper by the author and Dr. Philippi in the *Archiv für Naturgeschichte*, 1864, (1), pp. 41–54 (cf. *Zool. Rec.*, ii, p. 81), and of the paper in the same periodical, 1864, (1), pp. 55–62, by the author alone (cf. *Zool. Rec.*, ii, p. 80).—*Dendroica atricapilla* Ldb., p. 336; *Arundinicola citreola* Ldb., p. 338; *Chlorospiza plumbea* Ph. & L., p. 341; *Sycalis aureiventris* Ph. & L., p. 342, spp. nn. Sobre los Azores chilenos, p. 345; *Accipiter chilensis* Ph. & L., p. 346, sp. n.

1864. Landbeck, L. Beiträge zur Ornithologie Chiles. < *Arch. f. Naturg.*, 1864, (1), pp. 55–62. (Cf. *Arch. f. Nat.*, (1), 1864, pp. 41–54; 1865, pp. 56–106; 1866, pp. 121–132.)

Dendroica atricapilla, p. 56; *Arundinicola citreola*, p. 58.

1864. Lawrence, G. N. Descriptions of New Species of Birds [of Central and South America] of the Families Tanagridæ, Cuculidæ, and Trochilidæ, with a Note on Panterpe insignis. < *Ann. Lyc. Nat. Hist. New York*, viii, 1864, pp. 41–46.

Saltator fulviventris, p. 41; *Tachyphonus tibialis*, p. 41; *T. napensis*, p. 42; *Coccyzus julieni*, p. 42; *Urochroa leucura*, p. 43; *Urosticte ruficrissa*, p. 44; *Ramphomicron olivaceus*, p. 44.

1864. Lawrence, G. N. Catalogue of Birds collected at the Island of Sombrero, W. I., with Observations by A. A. Julien. < *Ann. Lyc. Nat. Hist. New York*, viii, 1864, pp. 92–106.

34 spp., of which only 12 are land-birds; among them are *Vireosylvia atripennis* and *Coccyzus julieni*; collector's field-notes; *Vireosylvia virginalis*, sp. n. prob., p. 97.

1864. Lawrence, G. N. Descriptions of New Species of Birds of the Families Caerebidæ, Tanagridæ, Icteridæ, and Scolopacidæ. < *Proc. Acad. Nat. Sci. Phila.*, xvi, 1864, pp. 106–108.

Dacnis ultramarina, *Saltator intermedius*, p. 106; *Cassicus vitellinus*, *Ereunetes occidentalis*, p. 107; all but the last from Isthmus of Panama, the *Ereunetes* being from North America.

1864. Philippi, R. A., *and* Landbeck, L. Contribuciones a la ornitolojía de Chile. < *Anales Univ. Chile*, xxv, Set. de 1864, pp. 408–439.

1. *Pteroptochus castaneus*, sp. n., p. 408.—2. De las Alondras Chilenas, pp. 409–418. *Certhilauda frobeni*, p. 411; *C. isabellina*, p. 412; *Geobamon fasciatus*, p. 415, spp. nn.—3. De las Muscisaxicolas Sud-Americanas, pp. 418–439. *Muscisaxicola cinerea*, p. 422; *M. rubricapilla*, p. 429; *M. flavivertex*, p. 434; *M. nigrifrons*, p. 436, spp. nn.—This paper reappears in *Arch. f. Naturg.*, 1865, *q. v.*

1864. Philippi, R. A., *and* Landbeck, L. Beiträge zur Ornithologie Chiles. < *Arch. f. Naturg.*, 1864, (1), pp. 41–54. (Cf. *Arch. f. Nat.*, (1), 1864, pp. 55–62; 1865, pp. 56–106; 1866, pp. 121–132.)

Accipiter chilensis, p. 43; *Chlorospiza plumbea*, p. 47; *Sycalis auriventris*, p. 49.

1864. Salvin, O. A Fortnight amongst the Sea-birds of British Honduras. < *Ibis*, vi, 1864, pp. 372–387.

Treating of numerous spp. in form of continuous narrative.

1864. Salvin, O. Descriptions of Seventeen New Species of Birds from Costa Rica. < *P. Z. S.*, xxxii, 1864, pp. 579–586, pll. xxxv–xxxvi.

Catharus gracilirostris, *Thryothorus albogularis*, *T. thoracicus*, *Myiadestes melanops* (pl. xxxv), p. 580; *Lanio leucothorax*, *Chlorospingus pileatus*, p. 581; *Embernagra superciliosa*, *Myrmeciza læmosticta*, *Grallaria dives*, p. 582; *Myiobius capitalis*, *Piprites griseiceps*, *Carpodectes* (g. n.) *nitidus* (pl. xxxvi), p. 583; *Oreopyra hemileuca*, *O. calolæma*, p. 584; *Chalybura melanorrhoa*, p. 585; *Selasphorus flammula*, *Odontophorus melanotis*, p. 586. The author is acquainted with about 300 species of Costa Rican birds, about 65 of which have been described as new, which have not been found beyond the limits of Costa Rica, even in the adjoining province of Veragua.

1864. Sclater, P. L. On some Additions to the List of the Birds of the Falkland Islands. < *P. Z. S.*, xxxii, 1864, p. 73.

Two species, obtained by Captain Packe, are added to the lists previously drawn up by Dr. Sclater (*P. Z. S.*, 1860, pp. 382–391; 1861, pp. 45–47, *q. v.*). These are *Egretta leuce* and *Prion turtur*. The author adds, from the "Ibis" (1861, p. 312), rectifications of the names of two others, viz: *Nycticorax obscurus* for *N. gardeni*, and *Larus glaucotis* for *L. roseiventris*.

1864. Sclater, P. L. Descriptions of Seven New Species of Birds discovered by the late Dr. John Natterer in Brazil. < *P. Z. S.*, xxxii, 1864, pp. 605–611, pll. xxxvii–xxxix, woodcc.

Granatellus pelzelni, p. 606, pl. xxxvii, f. 1, with synopsis of 3 spp.; *Tanagra olivina* Natt., *Spermophila pileata* (Natt.), p. 607, with synopsis of 8 spp.; *Poospiza oxyrhyncha* (Natt.), p. 608; *Hypocnemis flavescens* (Natt.), *Pteroptochus thoracicus* (pl. xxxiii), p. 609, woodcc. on p. 610; *Pipra nattereri*, p. 611, pl. xxxix.

1864. Sclater, P. L., *and* Salvin, O. Notes on a Collection of Birds from the Isthmus of Panama. < *P. Z. S.*, xxxii, 1864, pp. 342–373, pl. xxx.

Two hundred and seventy-two species are included in this list, to which is prefixed a concise notice of previous papers treating of the same subject. Four new species are described, namely, *Cassiculus microrhynchus*, *Myrmeciza immaculata*, *Camptostoma flaviventre*, and *Conurus ocularis*, while of all those enumerated a very full synonymy is given, correcting a great many former errors. One species, *Eucometis cassini*, is figured.

1864. Taylor, E. C. Five Months in the West Indies. < *Ibis*, vi, 1864, pp. 73–97, 157–173.

Part I, pp. 73–97, Trinidad and Venezuela; sketch of region; 141 spp.; *Tyrannus rostratus* Scl., sp. n. Part II, pp. 157–173, Martinique, Dominica, and Porto Rico; same treatment of subject; 48 spp.; *Certhiola dominicana*, p. 167; *Pitangus taylori* "Scl.", p. 169, spp. nn. Cf. *Ibis*, 1864, p. 405.

1865. Cassin, J. On some Conirostral Birds from Costa Rica in the Collection of the Smithsonian Institution. < *Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 169–172.

22 spp.—*Fringillidæ* + *Tanagridæ*. *Arremon rufidorsalis*, *Buarremon crassirostris*, p. 170; *Euphonia anneæ*, p. 172, spp. nn.

1865. Lawrence, G. N. Descriptions of New Species of Birds [of Central and South America] of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. <*Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126–135.

Buarremon ocai, p. 126; *Philydor rufobrunneus*, p. 127; *Anabazenops lineatus*, p. 127; *Margarornis rubiginosa*, *M. guttata*, p. 128; *M. brunneicauda* (proband.), p. 130; *Dysithamnus striaticeps*, p. 130; *D. rufiventris*, p. 131; *Myrmotherula albigula*, p. 131; *Myrmeciza stictoptera*, p. 132; *Empidonax flavescens*, p. 133; *Contopus lugubris*, *Eupherusa niveicauda*, p. 134.

1865. Lawrence, G. N. Descriptions of Six New Species of Birds from Central America. <*Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 171–174.

Spermophila hicksi, *S. badiiventris*, *S. fortipes*, *Formicivora schisticolor*, *Elainea frantzii*, and *Mitrephorus aurantiiventris*.

1865. Lawrence, G. N. List of Birds from near David, Chiriqui, New Grenada, collected for the Smithsonian Institution, Washington, by Mr. Fred. Hicks, with Descriptions of New Species. <*Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 174–178.

Spermophila collaris, p. 176; *Elainea chiriquensis*, p. 176; *E. semiflava*, p. 177, spp. nn.—39 spp.

1865. Lawrence, G. N. Catalogue of a Collection of Birds in the Museum of the Smithsonian Institution, made by Mr. H. E. Holland at Greytown, Nicaragua, with Descriptions of New Species. <*Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 178–184.

Thryothorus brunneus, p. 178; *Synallaxis nigrifumosa*, p. 180; *Thamnophilus hollandi*, p. 180, spp. nn. 61 spp.

1865. Lawrence, G. N. Descriptions of new species of Birds of the Families Paridæ, Vireonidæ, Tyrannidæ, and Trochilidæ, with a note on Myiarchus Panamensis. <*Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 37–39.

Polioptila plumbiceps, *Hylophilus acuticaudus*, p. 37; *Myiarchus venezuelensis*, *Chalybura aeneicauda*, p. 38; *C. carnioli*, *Panychlora parvirostris*, p. 39—the last two from Costa Rica, the others from Venezuela.

1865. Lawrence, G. N. Descriptions of four new Species of Birds from the Isthmus of Panama, New Grenada. <*Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 106–108.

Tachyphonus rubrifrons, *Anthus* (*Notiocorys*) *parvus*, p. 106; *Thamnophilus nigricristatus*, p. 107; *Geotrygon albiventer*, p. 108.

1865. Leybold, F. Cuatro especies nuevas de pájaros, descubiertos en la pendiente oriental de la cordillera que separa a la provincia de Santiago de la de Mendoza. <*Anales Univ. Chile*, tomo xxvi, Junio de 1865, pp. 712–718.

Synallaxis crissirostris Landb., p. 713; *Myarchus* (sic) *fasciatus* Landb., p. 714; *Sporofila* (sic) *rufirostri* (sic) [lege *Sporophila rufirostris*] Landb., p. 716; *Phrygilus ornatus* Landb., p. 717.

1865. Philippi, R. A., *and* Landbeck, L. Beiträge zur Ornithologie von Chile. <*Arch. für Naturg.*, 1865, (1), pp. 56–106. (Vergl. *Arch.*, 1864, (1), pp. 41–54, 55–62; 1866, pp. 121–132.)

Enthaltend: *Pteroptochos castaneus*, p. 56; Die Lerchen Chiles, pp. 58–73; *Certhilauda cunicularia* Lafr., *C. frobeni*, p. 62; *C. isabellina*, p. 63; *Geobamon fasciata*, p. 68; *Certhilauda nigrofasciata*. Monographie der südamerikanischen Muscisaxicolinen, pp. 74–106; *M. albifrons*, *M. cinerea*, p. 80; *M. maculirostris*, *M. mentalis*, *M. rubricapilla*, p. 90; *M. rufiventris*, *M. flavivertex*, p. 98; *M. nigrifrons*, p. 101; *M. striaticeps*, *M. frontalis*, *M. capistrata*; *M. brunnea*, *M. flavinucha*, *M. albilora*, *M. albimentum*—15 Arten.—Cf. Cab., *J. f. O.*, 1860, p. 249, note; Scl., *Ibis*, 1865, p. 59.

This paper continues one of similar title by Landbeck in same *Archiv*, 1864, pp. 55–62, *q. v.*; which latter continues one by Philippi and Landbeck, in same *Archiv*, 1864, pp. 41–54, *q. v.*; both these papers of 1864 also appearing in Spanish in *Anal. Univ. Chile*, xxiv, 1864, pp. 336–348, *q. v.*, under Landbeck, L. It is continued in same *Archiv*, 1866, pp. 121–132, *q. v.*

The original Spanish version of this paper is in *Anales Univ. Chile*, xxv, 1864, pp. 408–439.

1865. Salvin, O. The Sea-birds and Waders of the Pacific Coast of Guatemala. <*Ibis*, 2d ser., i, 1865, pp. 187–199.

Narrative; running commentary on numerous spp.

1865–66. Gundlach, J. Revista y Catálogo de las Aves Cubanas. < *Poey's Repertorio Físico-Nat. Isla Cuba*, tomo i, 1865–66, pp. 165–180 (entrega 7, Octubre 1865), 221–242 (ent. 8, 9, Noviembre, Diciembre, 1865), 281–302 (entregas 10, 11, Enero, Febrero, 1866), 347–363 (ent. 12, 13, Abril, Junio, 1866), 384–403 (ent. 14, Agosto 1866); Indice de las Aves Cubanas, pp. 414, 415.

Hasta ahora se conocen 257 especies en estado silvestre en esta isla; 119 especies que tambien pertenecen á la América Setentrional; á la América Meridional, 8; á las dos Américas, 55; á la América Setentrional y á la Europa, 8; á las dos Américas y á la Europa, 9; otras Antillas, 18; no en otras tierras, 40 (lámina de la distribucion geográfica á la página 168).

La clasificacion es la que se ha usado en el catálogo publicado por el autor en *J. f. O.*, Jahrg. ix, Nr. 53, 1861, SS. 321–349.

Apendice, pp. 396–402. Catálogo de las Aves introducidas, 4 esp. Cat. de las Aves observadas en el campo, pero probablemente huidas de jaulas, 6 esp. Cat. de las Aves indicadas como pertenecientes á la Ornitol. cubana, pero equivocadas con otras que en efecto se encuentran, 87 esp. Cat. de las Aves indicadas como pertenecientes á la Orn. Cub., pero indudablemente por error, 39 esp. Correcciones de erratas esenciales, p. 403.

Sketch of general character of the avifauna; table of geographical distribution of species. Of 257 species found feral in the island, 40 are peculiar to it, and 119, or more than half the remainder, are common to North America, 8 to South America. Extracts from a letter of Dr. Gundlach relating to Cuban ornithology are also printed in *Journ. f. Orn.*, 1866, pp. 352–354. Cf. *Ibis*, 1867, pp. 377, 378.

1866. Baird, S. F. [On dates of original publication of various spp. nn. of Philippi and Landbeck's as between Anales Univ. Chile and Arch. f. Naturg.] <*Ibis*, 2d ser., ii, 1866, pp. 424, 425.

1866. Benvenuti, E. Descrizione di quattro nuove specie della famiglia dei Trochilidi provenienti della Nuova Granata e di una nuova specie di Dendroica del Brasile con l'aggiunta di una nota riguardante la Fauna Toscana. < *Annali R. Mus. di Fisica e Storia Nat. di Firenze per il* 1865, nuova serie, i, 1866, pp. 197–209.

Polytmus (*Campylopterus*) *ceciliae*, p. 202; *Mellisuga* (*Panaplites*) *judith*, p. 203; *M.* (*Cynanthus*) *salvadorii*, p. 204; *M.* (*Eriocnemis*) *ridolfii*, p. 205; *Dendroica picciolii*, p. 207.

1866. Bryant, H. H. Bryant, Vögel von Porto Rico. <*J. f. O.*, xiv, 1866, pp. 181–191.

From *Proc. Bost. Soc. N. H.*, Jan., 1866, pp. 248–257.

1866. Bryant, H. A List of Birds from Porto Rico presented to the Smithsonian Institution, by Messrs. Robert Swift and George Latimer, with descriptions of new Species or Varieties. <*Proc. Bost. Soc. Nat. Hist.*, x, Jan., 1866, pp. 248–257.

41 spp.—*Tyrannus antillarum*, p. 249; *Todus hypochondriacus*, p. 250; *Mimus polyglottus* var. *portoricensis*, p. 251; *Certhiola flaveola* var. *portoricensis*, *Vireo latimeri* (descr. nulla), *Spindalis portoricensis*, p. 252; *Fringilla zena* var. *portoricensis*, *Icterus dominicensis* var. *portoricensis*, p. 254; *Saurothera vieillotii* var. *rufescens*, p. 256. Cf. *Ibis*, 1867, pp. 129, 130.

1866. Gundlach, J. Briefliches von Cuba. <*J. f. O.*, xiv, 1866, pp. 352–354.

Desultory remarks on a few species.

1866. Guyon, —. Des animaux disparus de la Martinique et de la Guadeloupe depuis notre établissement dans ces iles. <*Comptes Rendus de l'Acad. Sci. Paris*, lxiii, 8 Oct. 1866, pp. 589–593.

Not seen: title from *Zool. Rec.*

1866. Lawrence, G. N. Characters of Seven New Species of Birds from Central and South America, with a Note on Thaumatias chionurus. <*Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 344–350.

Campylorhynchus brevipennis, p. 344; *Automolus rufescens*, p. 345; *Grallaria gigantea*, p. 345; *Grallaricula costaricensis*, p. 346; *Phæthornis cassinii*, p. 347; *Eupherusa cupreiceps*, p. 348; *Geotrygon veraguensis*, p. 349.

1866. Lawrence, G. N. Descriptions of Six New Species of Birds of the Families Hirundinidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. <*Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 400–405.

Hirundo æquitorialis, p. 400 (Ecuador); *Thamnophilus leucopygus*, p. 401 (Panama); *Empidonax pectoralis*, p. 402 (Panama); *Heliodoxa henryi*, p. 402 (Costa Rica); *Thaumatias viridicaudus*, p. 404 (Buenaventura); *Amazilia* (*Pyrrophæna*) *graysoni*, p. 404 (Tres Marias Islands).

1866. LÉOTAUD, A. Oiseaux | de | L'Ile de la Trinidad, | (Antilles), | par A. Léotaud, | Docteur en Médecine de la Faculté de Paris; membre correspondant de la | Société de Médecine de Gand. | — | Ouvrage publié par souscription nationale | — | Port d'Espagne: | Chronicle Publishing Office. | — | 1866. 1 vol. 8vo. 2 p. ll., pp. i–xx, 1 l., 1–560, 1 l., i–viii, i–iv.

A systematic treatise on 294 + 3 species, with synonymy, description, and general remark. Geographical categories are given at pp. ix–xiii. *Cymindis pucherani*, p. 40; *Dendrocolaptes altirostris*, p. 166; *Empidonax cabanisi*, p. 232; *Tachyphonus albispecularis*, p. 303, spp. nn.

The author appears to have labored under the usual disadvantages of those who work away from centres of learning, and his work has a somewhat amateurish air; but it is most creditable to him, considering what difficulties he had to contend with, and becomes a standard work on the special subject.

"L'ornithologie de la Trinidad frappe tout d'abord par le grand nombre d'espèces, 294 [297] qui la composent; . . .

"Ce qui frappe ensuite dans l'ornithologie de la Trinidad c'est qu'elle relève presqu'entièrement de l'Amérique Méridionale. En effet en jetant un coup d'œil sur les tableaux qui précèdent, . . . on ne trouve pour total que 95 espèces communes à l'une ou à plusieurs des localités désignées dans ces tableaux. Il reste donc déjà, par ce seul fait, 199 espèces propres exclusivement à la Trinidad et par conséquent à l'Amérique Méridionale. . . . Il en resterait 274 propres à la Trinidad et à l'Amérique du Sud.

"Un troisième fait non moins intéressant ressort de la limite qu'atteignent, dans les Antilles, les oiseaux migrateurs partis soit du Sud soit du Nord."

Cf. especially *Ibis*, 1867, pp. 104–108, for critique on the work.

1866. LEYBOLD, F. Beschreibung von vier neuen Vogelarten aus der Argentinischen Provinz Mendoza. < *J. f. O.*, xiii, 1865, pp. 401–406. (Pub. 1866.)

Synallaxis crassirostris, p. 401; *Myiarchus fasciatus*, p. 402; *Sporophila rufirostris*, p. 404; *Phrygilus ornatus*, p. 405. Described by Herr L. Landbeck. See 1865, LEYBOLD, F.

1866. PHILIPPI, R. A., *and* LANDBECK, L. Beiträge zur Fauna Chiles. < *Arch. f. Naturg.*, 1866, (1), pp. 121–132.

Pteroptochos castaneus, p. 121; *Sterna luctuosa*, sp. n,, p. 126; *Synallaxis masafucræ* (sic—lege *masafueræ*), sp. n., p. 127; *Numenius microrhynchus*, sp. n., p. 129.

This concludes a series of papers by one of, or both, these authors, of same or similar title, in same *Archiv*, 1864, pp. 41–54, 55–64; 1865, pp. 56–106.

1866. SALVIN, O. A further Contribution to the Ornithology of Guatemala. < *Ibis*, 2d ser., ii, 1866, pp. 188–206.

81 spp., briefly annotated. The paper continues under a subheading "Corrections to the former Papers on the Ornithology of Central Guatemala"—which must not be overlooked in using them. The papers referred to are in *Ibis*, i, 1859; ii, 1860; iii, 1861. *Chamæospiza torquata* S. & S., *Ibis*, 1860, 274, is *Pyrgisoma leucote*.

1866. SALVIN, O. Descriptions of Eight New Species of Birds from Veragua. < *P. Z. S.*, xxxiv, 1866, pp. 67–76, pll. vii, viii.

Catharus griseiceps, p. 68, with synopsis of 10 spp.; *Microcerculus luscinia*, p. 69, with synopsis of 5 spp.; *Euphonia rufivertex*, p. 71, pl. vii; *Buarremon mesoxanthus*, *Philydor fuscipennis*, *Dysithamnus puncticeps*, p. 72; *Formicarius rufipectus*, p. 73, pl. viii, with synopsis of 7 spp.; *Trogon clathratus*, p. 75.

1866. SCLATER, P. L. On the Birds of the Vicinity of Lima, Peru. With Notes on their habits; by Prof. W. Nation, of Lima, C. M. Z. S. [Part I.] < *P. Z. S.*, xxxiv, 1866, pp. 96–100, pl. xi.

23 spp.—*Geositta crassirostris*, p. 98; *Myiobius nationi*, p. 99, pl. xi, f. 1, spp. nn. The other figure of the same plate represents *M. pulcher*.—Continued, *P. Z. S.*, 1867, pp. 340–344.

1866. SCLATER, P. L., *and* SALVIN, O. Catalogue of Birds collected by Mr. E. Bartlett on the River Ucayali, Eastern Peru, with Notes and Descriptions. < *P. Z. S.*, xxxiv, 1866, pp. 175–201, pl. xviii.

The collection contained about 700 specimens, of 252 spp.—*Leucippus chlorocercus* "Gould", p. 194; *Thaumatias bartletti* Gould, p. 194; *Hypocnemis melanura*, p. 186; *H. hemileuca*, p. 187; *Synallaxis terricolor*, p. 183; *S. vulpecula*, p. 184; *Metopothrix* (g. n.) *aurantiacus*, p. 190, pl. xviii; *Serpophaga hypoleuca*, p. 188; *Spermophila ocellata*, p. 181; *Muscisaxicola fluviatilis*, p. 187; *Furnarius torridus*, p. 183, spp. nn.

1866. SCLATER, P. L., *and* SALVIN, O. On some Additions to the Catalogue of Birds collected by Mr. E. Bartlett on the River Ucayali. < *P. Z. S.*, xxxiv, 1866, pp. 566, 567.

20 species in addition to those of the former list are noticed; none new.

1866–69. Sclater, P. L., *and* Salvin, O. Exotic Ornithology, | containing | Figures and Descriptions of New or Rare Species | of | American Birds, | by | Philip Lutley Sclater, M. A., Ph. D., F. R. S., | Secretary to the Zoological Society of London, | late Fellow of Corpus Christi College, Oxford; | and | Osbert Salvin, M. A., F. L. S., F. Z. S. | — | London: | Bernard Quaritch, 15 Piccadilly. | [1866 to] 1869. 1 vol. Folio. pp. i–vi, 1–204, pll. i–c. (Published in 13 parts.)

Exact dates of publication are:—Part I, pll. i–viii, Oct. 1, 1866. II, pll. ix–xvi, Feb. 1, 1867. III, pll. xvii–xxiv, May 1, 1867. IV, pll. xxv–xxxii, Aug. 1, 1867. V, pll. xxxiii–xl, Jan. 1, 1868. VI, pll. xli–xlviii, Apr. 1, 1868. VII, pll. xlix–lvi, July 1, 1868. VIII, pll. lvii–lxiv, Aug. 1, 1868. IX, pll. lxv–lxxii, Dec. 1, 1868. X, pll. lxxiii–lxxx, Jan. 1, 1869. XI, pll. lxxxi–lxxxviii, June 1, 1869. XII, pll. lxxxix–xcvi, Aug. 1, 1869. XIII, pll. xcvii–c, Nov. 1, 1869. The last part contains permanent title, preface, contents, and errata (pp. i–vi), and index (pp. 201–204). The temporary cover-title is a little different from the permanent one.

Cf. *Ibis*, 1867, pp. 123, 372; 1868, pp. 335–337; 1869, pp. 109, 110; 1870, 262–264; *Zool. Rec.*, iii, p. 48; iv, p. 51; v, p. 38; vi, p. 60.

The plates are all by Mr. Smit; they are very beautiful. The whole number of species figured is 104, referred to 51 genera. In most cases, a systematic list of the other American species of the same genus is appended to the final illustration of each, thereby enlarging the scope and greatly increasing the value of the work. Each of the species is systematically treated with synonymy, diagnosis, and critical and biographical matter. The authors are the highest authorities in neotropical ornithology, and this work is a monument of erudition, industry, and artistic excellence.

Pl. 1, *Lipaugus unirufus.* Pl. 2, *L. subalaris.* Pl. 3, *L. rufescens.* Pl. 4, *Furnarius torridus.* Pl. 5, *Xipholena atropurpurea.* Pl. 6, *Ptilogonys caudatus.* Pl. 7, *Vireolanius melitophrys.* Pl. 8, *V. pulchellus.*—Pl. 9, *Phlogopsis macleannani.* Pl. 10, *Cinclocerthia ruficauda.* Pl. 11, *C. macrorhyncha.* Pl. 12, *C. gutturalis.* Pl. 13, *Accipiter ventralis.* Pl. 14, *A. chionogaster.* Pl. 15, *Rupicola sanguinolenta.* Pl. 16, *Porzana rubra.*—Pl. 17, *Accipiter erythrocnemis.* Pl. 18, *A. castanilius.* Pl. 19, *Cichlopsis leucogonys.* Pl. 20, *Nyctibius bracteatus.* Pl. 21, *Cyphorinus lawrencii.* Pl. 22, *C. phæocephalus.* Pl. 23, f. 1, *Thryothorus solstitialis;* f. 2, *T. brunneicollis.* Pl. 24, *Icterus pustulatus.*—Pl. 25, *Myiadestes obscurus.* Pl. 26, *M. unicolor.* Pl. 27, *M. ralloides.* Pl. 28, *M. elizabethæ.* Pl. 29, *Hylactes castaneus.* Pl. 30, *Oedicnemus superciliaris.* Pl. 31, *Lanio aurantius.* Pl. 32, *L. leucothorax.* Pl. 33, *Tachyphonus phoeniceus.* Pl. 34, *T. delattrii.* Pl. 35, *Xiphocolaptes emigrans.* Pl. 36, *X. major.* Pl. 37, *Accipiter chilensis.*—Pl. 38, *Leucopternis superciliaris.* Pl. 39, *Geotrygon* "*chiriquensis*" (=*albifacies*, see *Exot. Ornith.*, viii, 1868, p. 123). Pl. 40, *G. bourcieri.*—Pl. 41, f. 1, *Chlorophonia frontalis;* f. 2, *C. longipennis.* Pl. 42, *C. occipitalis.* Pl. 43, *Melanotis hypoleucus.* Pl. 44, *Tinamus robustus.* Pl. 45, *Crypturus sallcei* (lege *sallæi*). Pl. 46, *C. boucardi.* Pl. 47, *C. meserythrus.* Pl. 48, *Tigrisoma cabanisi.*—Pl. 49, *Leucopternis palliata.* Pl. 50, *Scops flammeola.* Pl. 51, *S. barbarus.* Pl. 52, *Chætura semicollaris.* Pl. 53, *Porzana hauxwelli.* Pl 54, *P. melanophæa.* Pl. 55, *P. albigularis.* Pl. 56, *P. leucopyrrha.*—Pl. 57, *Fulica ardesiaca.* Pl. 58, *F. armillata.* Pl. 59, *F. leucopyga.* Pl. 60, *F. leucoptera.* Pl. 61, *Leucopternis semiplumbea.* Pl. 62, *Geotrygon chiriquensis* (verus; vide suprà). Pl. 63, *Cardinalis phoeniceus.* Pl. 64, f. 1, *Pyrgisoma rubricatum;* f. 2, *P. leucote.*—Pl. 65, f. 1, *P. cabanisi;* f. 2, *P. kieneri.* Pl. 66, *Oxyrhamphus frater.* Pl. 67, *Thyrorhina schomburgki.* Pl. 68, *Chlorophonia calophrys.* Pl. 69, *Accipiter bicolor.* Pl. 70, *Turdus gigas.* Pl. 71, *T. albicollis.* Pl. 72, *T. leucomelas.*—Pl. 73, *T. crotopezus.* Pl. 74, *T. albiventris.* Pl. 75, *T. phæopygus.* Pl. 76, *T. gymnophthalmus.* Pl. 77, *Bucco striolatus.* Pl. 78, *Porzana castaneiceps.* Pl. 79, *Attagis chimborazensis.* Pl. 80, *Formicivora strigilata.*—Pl. 81, *Conurus hoffmanni.* Pl. 82, *Rallus antarcticus.* Pl. 83, *R. semiplumbeus.* Pl. 84, *Pitylus humeralis.* Pl. 85, *Accipiter guttatus.* Pl. 86, *Ampelion arcuatus.* Pl. 87, *Asturina nattereri.* Pl. 88, *A. ruficauda.*—Pl. 89, *A. pucherani.* Pl. 90, *A. plagiata.* Pl. 91, *Botaurus pennatus.* Pl. 92, *Tigrisoma fasciatum.* Pl. 93, *Thripadectes flammulatus.* Pl. 94, *Icterus abeillii.* Pl. 95, *Centropelma micropterum.* Pl. 96, *Centrites oreas.*—Pl. 97, *Gallinago imperialis.* Pl. 98, *G. nobilis.* Pl. 99, *Querquedula puna.* Pl. 100, *Merganetta turneri.*

1867. Bryant, H. A List of the Birds of St. Domingo, with Descriptions of some New Species or Varieties. < *Proc. Boston Soc. Nat. Hist. for* Dec. 5, 1866, xi, pub. 1867, pp. 89–98.

79 spp., in part annotated. *Tyrannula stolida* var. *dominicensis*, p. 90; *T. carribæa* var. *hispaniolensis*, *Mimus polyglottus* var. *dominicus*, *Chrysomitris dominicensis*, p. 93, fig. p. 94, spp. nn. *Kalochelidon*, p. 95, gen. n. Cf. *Ibis*, 1868, p. 229.

1867. Lawrence, G. N. Descriptions of New Species of American Birds. < *Ann. Lyc. Nat. Hist. New York*, viii, 1867, pp. 466–482.

Euphonia purpurea, p. 466; *Buarremon flavovirens*, p. 467; *Pytilus* (*Caryothraustes*) *humeralis*, p. 467; *Philydor virgatus*, p. 468; *Thamnophilus tenuifasciatus*, p. 468; *Thamnophilus nigres-*

1867. Lawrence, G. N.—Continued.

cens, p. 469; *Myiodynastes superciliaris*, p. 470; *Aglæactis olivaceocauda*, p. 470; *Heliomaster spectabilis*, p. 472; *Passerculus guttatus*, p. 473; *Zonotrichia melanotis*, p. 473; *Coturniculus mexicanus*, p. 474; *Hadrostomus albiventris*, p. 475; *Ortyx graysoni*, p. 476; *Saltator plumbiceps* Bd. MS., p. 477; *Pheucticus tibialis* Bd. MS., p. 478; *Spermophila atriceps* Bd. MS., p. 479; *Pyrgisoma xantusii* Bd. MS., p. 480; *Dendrornis mentalis* Bd. MS., p. 481. Cf. *Ibis*, 1868, pp. 114, 115.

1867. Lawrence, G. N. Notes on certain Birds from New Grenada, with descriptions of New Species. < *Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 94, 95.

Tachyphonus propinquus, *Phœnicothraupis vinacea*, *Leptoptila cassini*, p. 94, spp. nn. Cf. *Ibis*, 1868, p. 230.

1867. Lawrence, G. N. Descriptions of Five New Species of Central American Birds. < *Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 232–234.

Glaucis æneus, *Eupherusa nigriventris*, p. 232; *Thaumatias luciæ*, *Dromococcyx rufigularis*, p. 233; *Aramides albiventris*, p. 234. Cf. *Ibis*, 1868, pp. 114 and 485.

1867. Philippi, R. A. Comentario crítico sobre los animales descritos por Molina. < *Anales Univ. Chile*, xxix, Oct., 1867, pp. 775–802.

"Vienen ahora las 'aves'", pp. 788–795, Nos. 104–170.

1867. Salvin, O. On some Collections of Birds from Veragua. < *P. Z. S.*, xxxv, 1867, pp. 129–161, pl. (Aves) xiv.

220 spp., less 4. Avifaunal characters of the region. Pl. xiv, *Buarremon crassirostris.*—*Chamæpetes unicolor*, p. 159; *Odontophorus leucolæmus*, p. 161, spp. nn.

1867. Sclater, P. L. Remarks on Dr. Léotaud's 'Birds of Trinidad.' < *Ibis*, 2d ser., iii, 1867, pp. 104–108.

Criticism of the work as a whole, and of names of various species in particular.

1867. Sclater, P. L. [Extracts from letters received from Mr. E. Bartlett, relating to Peruvian Birds.] < *P. Z. S.*, xxxv, 1867, p. 2.

1867. Sclater, P. L. Notes on the Birds of Chili. < *P. Z. S.*, xxxv, 1867, pp. 319–340.

Abstract of bibliography. Running commentary on the birds, under heads of the several families; nominal list of 209 species. The article is the most complete summary of the subject extant. It has special reference to the species described by Philippi and Landbeck. Cf. *Naumannia*, 1853, pp. 207–222; *Zool. Rec.*, ii, pp. 80, 81, and iii, p. 64.

1867. Sclater, P. L. On the Birds of the Vicinity of Lima, Peru. With Notes on their Habits; by Prof. Nation, of Lima.—(Part II.) < *P. Z. S.*, xxxv, 1867, pp. 340–344, pll. xx, xxi.

Continued from *P. Z. S.*, 1866, p. 100.—12 spp.—*Poospiza bonapartii*, p. 341, pl. xx; *Porzana erythrops*, p. 343, pl. xxi, spp. nn.—Continued, *P. Z. S.*, 1869, pp. 146–148.

1867. Sclater, P. L., *and* Salvin, O. List of Birds collected on the Blewfields River, Mosquito Coast, by Mr. Henry Wickham. < *P. Z. S.*, xxxv, 1867, pp. 278–280.

39 spp.; none new.

1867. Sclater, P. L., *and* Salvin, O. List of Birds collected by Mr. Wallace on the Lower Amazons and Rio Negro. < *P. Z. S.*, xxxv, 1867, pp. 566–596, pll. xxix, xxx.

282 spp., annotated; with several synopses of different groups, and summary comparisons of local faunas. *Hylophilus rubrifrons*, p. 569, pl. xxx, f. 1; *H. semicinereus*, p. 570, pl. xxx, f. 2; *Heteropelma wallacii*, p. 579. Pl. xxix is *Turdus phaeopygus*.

1867. Sclater, P. L., *and* Salvin, O. Catalogue of Birds collected by Mr. E. Bartlett on the River Huallaga, Eastern Peru, with Notes and Descriptions of New Species. < *P. Z. S.*, xxxv, 1867, pp. 748–759, pl. xxxiv.

Tabular list of 205 spp., followed by critical commentary on many of them. *Dendrocolaptes radiolatus* Scl. MS., p. 755; *Thamnophilus murinus* Natt. MS., *Myrmotherula cinereiventris* Scl. MS., p. 756; *Chætura brachycerca* (pl. xxxiv), *Celeus citreopygius* Bp. MS., p. 758, spp. nn.

1867. Sclater, P. L., *and* Salvin, O. List of Birds collected at Pebas, Upper Amazon, by Mr. John Hauxwell, with Notes and Descriptions of New Species. < *P. Z. S.*, xxxv, 1867, pp. 977–981, pl. xlv.

135 spp.—*Oryzoborus melas*, p. 979; *Percnostola fortis*, p. 980, pl. xlv, and fig. xylog.; *Tyranniscus gracilipes*, *Porzana fasciata*, p. 981, spp. nn.

1867. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. H. Whitely.—Part I. < *P. Z. S.*, xxxv, 1867, pp. 982–991, pl. xlvi.

58 spp., annotated—Continued, *P. Z. S.*, 1868, pp. 173–178.

1867–69. Euler, C. Beiträge zur Naturgeschichte der Vögel Brasiliens. < *J. f. O.*, xv, 1867, pp. 177–198, 217–233, 399–420; xvi, 1868, pp. 182–194; xvii, 1869, pp. 241–255.

Cf. *Zoöl. Rec.*, 1867, p. 68; 1868, p. 55; 1869, p. 49.

1868. Anon. A strange [apparently fabulous] Bird. < *Zoologist*, 2d ser., iii, 1868, p. 1295.

From a Copiapo (Chili) paper.

1868. Bell, A. S. [Allusions to some of the] Wild-fowl of Jamaica. < *Zoologist*, 2d ser., iii, 1868, p. 1483.

1868. Burmeister, H. Contributions to the Ornithology of the Argentine Republic and Adjacent Lands. Part I. < *P. Z. S.*, xxxvi, 1868, pp. 633–636.

Since the publication of the author's "Systematisches Verzeichniss der in den La Plata-Staaten beobachteten Vögelarten" (*Journ. für Orn.*, 1860, pp. 241–268), and his "Reise durch die La-Plata-Staaten" (1861), he lived five years in Buenos Ayres, and, in studying the ornithology of the district, observed some new species, three of which (*Cymindis boliviensis*, p. 633; *Pachyrhamphus albinucha*, p. 635; *Synallaxis sulphurifera*, p. 636) are now described, and notes on 11 others are given.—Title and part of the comment from *Zool. Rec.*

1868. Cope, E. D. The Birds of Palestine and Panama compared. < *American Naturalist*, ii, No. 7, Sept., 1868, pp. 351–359.

Founded on the researches of Messrs. Tristram, Sclater, and Salvin.

1868. Cunningham, R. O. [Letters on South American Ornithology.] < *Ibis*, 2d ser., iv, 1868, pp. 122–129, 486–495.

His first letter gives a general account of the birds met with on his voyage to Patagonia. His second letter describes briefly the localities visited, mentioning their chief ornithological features. (Another letter follows, *Ibis*, 1869, pp. 232–234.)

1868. Giebel, C. Einige neue und wenig bekannte argentinische Vögel. < *Zeitschr. für die gesammten Naturwissenschaften*, 1868, pp. 11–17.

Notes on 4 species, 2 of which, *Furnarius tricolor* "Burm.", p. 11, and *Campylorhynchus pallidus* "Burm.", p. 13, appear to be described as new.—Not seen.

1868. Philippi, R. A. Catálogo de las aves chilenas existentes en el Museo Nacional de Santiago, formado por su director don Rodulfo Armando Philippi. < *Anal. Univ. Chile*, tomo xxxi, nº 2º, Agosto de 1868, pp. 241–335.

Prólogo, p. 241. Catálogo, pp. 242–292, el órden i la nomenclatura adoptada en la obra de Gay; 229 especies; las especies descritas como chilenas que faltan en el Museo con la seña † (89).—Aves chilenas descritas en la obra de Gay que faltan en el Museo ó que deben borrarse, pp. 292–294, 86 esp.—Aves chilenas no descritas en la obra de Gay, pero existentes en el Museo, pp. 295–298, 55 esp.—El cuadro siguientes, pp. 298–319, indica cuales de las aves chilenas se hallan aun en los paises limítrofos i otros paises, i cuales son peculiares a la República Chilena.—Apendices: I, pp. 319, 320, Lista de algunos pájaros peruanos en el Museo. II, p. 320, Pájaros nuevos mendocinos descritos por Landbeck. III, pp. 320–335, Observaciones críticas sobre algunas especies chilenas mencionas por diversos autores: 1. Hartl., *Naum.*, p. 220 i siguientes; 2. Beit. zur Zool. gesammelt auf einer Reise um die Welt von Dr. F. I. F. Meyen, vierte Abth.; 3. Burmeister, Reise durch die La Plata-Staaten; 4. Bibra, Viaje; 5. T. R. Peale, U. S. Exploring Expedition; 6. Tschudi, Beit. zur geogr. Verbreit. der Meeresvögel u. s. w.; 7. Hombron i Jacquinot; 8. Cassin, U. S. Naval Astron. Exped.; 9. Sclater, Notes on the Birds of Chile, *P. Z. S.*, March 25, 1867, p. 319 i sig.

"Quedarian, pues, solo 193, nuestro catálogo de las especies chilenas existentes en el Museo abraza 229 especies ó si se quiere eliminar . . . siempre 224, i faltan al Museo una docena de aves de alta mar, que conocemos ser chilenas, de modo que el número de las aves chilenas se elevaria a unas 236 o 240."

1868. Philippi, R. A. [Letter relating to certain Birds of Chili.] < *P. Z. S.*, xxxvi, 1868, pp. 531, 532.

Contains a few corrections of previous paper (*P. Z. S.*, 1867, pp. 319, 320, notes), the principal one referring to two species of *Anatidæ*.

1868. Salvadori, T. Intorno ad alcuni Uccelli di Costa Rica. <*Atti della R. Accad. delle Sci. di Torino*, iv, Dec., 1868, pp. 170–185, pl.

23 spp.; none new. *Urospatha*, g. n., p. 179. The plate represents *Pheucticus tibialis*. Cf. *Zool. Rec.*, iv, p. 107; *Ibis*, 1869, pp. 222, 223.

1868. Sclater, P. L. [Report on Lecompte's Expedition to the Falkland Islands.] <*P. Z. S.*, 1868, p. 526.

1868. Sclater, P. L., *and* Salvin, O. List of Birds collected in the Straits of Magellan by Dr. Cunningham, with remarks on the Patagonian Avifauna. <*Ibis*, 2d ser., iv, 1868, pp. 183–189.

Briefly bibliographical. List of Patagonian *Passeres* (30 spp.); 61 specimens, referable to 44 spp.—Continued, *Ibis*, 1869, pp. 283–286.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New Species of Birds of the Families Dendrocolaptidæ, Strigidæ, and Columbidæ. <*P. Z. S.*, xxxvi, 1868, pp. 53–60, pl. v, woodcc.

Dendrocincla ruficeps, p. 54; *Dendrocolaptes puncticollis*, p. 54, pl. v, woodc.; synopses of these genera; *Syrnium fulvescens*, p. 58; *Scops barbarus*, p. 56, woodc.; synopsis of 7 spp. of *Scops*; *Leptoptila plumbeiceps*, *L. cerviniventris*, p. 59, with synopsis of 8 spp. of the genus.

1868. Sclater, P. L., *and* Salvin, O. List of Birds collected at Conchitas, Argentine Republic, by Mr. William H. Hudson. <*P. Z. S.*, xxxvi, 1868, pp. 137–146.

96 spp. briefly annotated; 14 additional to those of Burmeister's 'Reise', *q. v.*, 1856.

1868. Sclater, P. L., *and* Salvin, O. On Venezuelan Birds collected by Mr. A. Goering.—Part I. <*P. Z. S.*, xxxvi, 1868, pp. 165–172, pl. xiii, woodc.

126 spp., in tabular form showing geographical distribution, and critical commentary on some of them. *Basileuterus griseiceps*, p. 170, *Euscarthmus impiger*, p. 171, woodc. pl. xiii, f. 1; *Sublegatus* (g. n.) *glaber*, p. 171, pl. xiii, f. 2, woodc., p. 172, spp. nn.

1868. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. H. Whitely. Part II. <*P. Z. S.*, xxxvi, 1868, pp. 173–178, woodcc.

Continued from *P. Z. S.*, 1867, pp. 982–991.—A list of a collection made in the Tambo Valley, including 28 spp., none of which are new; but valuable critical notes are appended, and woodcuts of the heads of 2 spp., belonging to *Tanagridæ* (?) and *Rallidæ* (*Fulica chilensis*), are introduced.—Continued, *P. Z. S.*, 1868, pp. 568–570.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New or Little-known American Birds of the Families Fringillidæ, Oxyrhamphidæ, Bucconidæ, and Strigidæ. <*P. Z. S.*, xxxvi, 1868, pp. 322–329, pl. xxix.

Peucæa notosticta, sp. n., p. 322, with list of 5 spp. *Zonotrichia quinquestriata*, p. 323, sp. n. List of 5 spp. of *Pyrgisoma*. *Oxyrhamphus frater*, p. 326, sp. n. *Monasa grandior*, p. 327, sp. n. *Gymnoglaux lawrencii*, p. 328, pl. xxix, with synonymy of 2 spp. of this genus.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of Four New Species of Birds from Veragua. <*P. Z. S.*, xxxvi, 1868, pp. 388–390.

Pyranga testacea, p. 388; *Chlorospingus hypophæus*, *Leptotriccus superciliaris*, *Eupherusa egregia*, p. 389.

1868. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. H. Whitely. Part III. <*P. Z. S.*, xxxvi, 1868, pp. 568–570.

Continued from *P. Z. S.*, 1868, pp. 173–178.—A list of a small collection of 11 spp. made near Arequipa; with a nominal list of 83 spp. procured by Mr. Whitely in Western Peru.—Continued, *P. Z. S.*, 1869, pp. 151–159.

1868. Sclater, P. L., *and* Salvin, O. On Venezuelan Birds collected by Mr. A. Goering.—Part II. <*P. Z. S.*, xxxvi, 1868, pp. 626–632.

Nominal list of 99 spp., with commentary on 13 of them. *Myiarchus erythrocercus*, p. 631; *Heteropelma stenorhynchum*, p. 632, spp. nn.

1868–69. Lawrence, G. N. A Catalogue of the Birds found in Costa Rica. <*Ann. Lyc. Nat. Hist. New York*, ix, 1868, pp. 86–149 (pp. 86–141, Apr., 1868; pp. 141 bis-149, Feb., 1869).

Based upon the collections received by the Smithsonian Institution, supplemented by information received from other sources, and includes notices of 474 spp. of land-birds, of which 12 (belonging to *Trogonidæ*, *Formicariidæ*, *Dendrocolaptidæ*, *Tyrannidæ*, *Mniotiltidæ*, *Tanagridæ*, *Columbidæ*, and *Tinamidæ*) are described as new, while a thirteenth (*Trochilidæ*) may be so. In the introductory remarks, the author gives a summary of previous writings

1868–69. Lawrence, G. N.—Continued.

on Costa Rican ornithology, and three lists, the first two of species noted from Chiriqui and Veragua, respectively, which may be found in Costa Rica, and the third of northern species obtained in Panama, but not yet observed in the country of which the paper treats. The remainder of the paper is devoted to the catalogue, which, in the great majority of cases, gives only the name of the species and of the locality where it has been obtained. (Cf. *Ibis*, 1869, pp. 110, 222, and especially O. Salvin, *Ibis*, 1869, pp. 310–319, for extended and elaborate criticism.)—(Above paragraph mostly from *Zool. Rec.*, 1868, p. 55.)

Basileuterus melanotis, p. 95; *Phœnicothraupis carmioli*, p. 100; *Synallaxis rufigenis*, p. 105; *Myrmotherula modesta*, p. 108; *Mionectes olivaceus*, p. 111; *Rhynchocyclus griscimentalis*, p. 112; *Trogon bairdii*, p. 119; *Chloroenas subvinacea*, p. 135; *Geotrygon costaricensis*, *G. cœruleiceps*, p. 136; *Leptoptila riottei*, p. 137; *Tinamus frantzii*, p. 140; *Pogonotriccus? zeledoni*, p. 144, spp. nn. 511 spp. Much critical commentary.

1868–70. Pelzeln, A. v. Zur | Ornithologie | Brasiliens. | Resultate von Johann Natterers Reisen | in den Jahren 1817 bis 1835. | Dargestellt | von | August von Pelzeln, | Custos am k. k. zoologischen Cabinete in Wien, Mitglied der kais. Leopold. | Carol. Academie der Naturforscher, Ehrenmitglied der British Ornithologist's | Union u. s. w. | — | Wien. | Druck und Verlag von A. Pichler's Witwe & Sohn. | 1871 [*i. e.* 1868–1870]. 1 vol. 8vo. 4 p. ll., pp. i–lx, 1–462, 9 ll. (Zusätze und Index), 2 maps.

Published in 4 parts, at different dates, as follows: I. Abth., 1868, map, 3 p. ll., pp. i–lx, 1–68. II. Abth., 1869, pp. 69–188. III. Abth., 1870, pp. 189–390. IV. Abth., "1871" [*i. e.* 1870], pp. 391–462, 9 ll., general title-page, map.—The date of the concluding part is ostensibly in question; for the date on the cover-title of the part itself is 1871, but the back of the general title-page of the work gives it as 1870, and a note on the cover-title of Part III announces: ,,Die vierte (Schluss-) Abtheilung erscheint Anfangs des Jahres 1870.'' The actual date is 1870.

Inhalt:—Abth. I, 1868. Vorwort, 2 p. ll. Itinerarium von Natterer's Reisen in Brasilien, von 1817 bis 1835, pp. i–xx. Tabellarische Uebersicht der von Natterer in Brasilien gesammelten Arten nach ihrer Verbreitung in den wichtigsten Faunaengebieten, pp. xxi–lix (1238 spp.). *Accipitres* und *Passeres Fissirostres* et *Tenuirostres*, pp. 1–49 (78 + 99 + 177 = 354 spp.). Beschreibung neuer oder wenig gekannter Arten, pp. 49–68. *Stenopsis candicans* N., p. 49; *S. langsdorffi* P., p. 52; *S. platura* N., p. 53 (Diagnosen dieser drei Arten finden sich in den *P. Z. S.*, 1866, pp. 588, 589); *Antrostomus cortapau* N., p. 53; *Chactura sclateri* P., p. 56; *Thalurania iolaemus* N., p. 57; *Cephalolepis beskii* P., p. 58; *Sittasomus stictolaemus* P., p. 59; *Dendrocincla longicauda* N., *D. minor* P., p. 60; *Dendrocolaptes pallascens* P., p. 61; *D. concolor* P., p. 62; *Picolaptes fuscicapillus* P., *Dendrornis elegans* P., p. 63; *Dendroplex similis* N., p. 64; *Cyphorinus* (*Microcerculus*) *cinctus* N., p. 65; *Thryothorus minor* P., p. 66; *Odontorhynchus* (Pelz., g. n.) *cinereus* N., p. 67.—Abth. II, 1869. *Passeres Dentirostres*, pp. 69–136 (371 spp.). Beschreibung neuer oder wenig gekannter Arten, pp. 136–188. *Hylophilus hypoxanthus* P., p. 136; *Basileuterus leucophrys* N., *Cyclorhis wiedii* P., p. 137; *Thamnophilus unduliger* P., p. 139; *T. borbae* P., p. 140; *T. tschudii* P., *T. moestus* P., p. 141; *T. cinereoniger* P., p. 143; *T. sticturus* P., p. 144; *T. cinereiceps* P., *T. cinereinucha* P., p. 145; *T. stictocephalus* P., *T. punctuliger* P., p. 146; *T. polionotus* P., *T. saturninus* P., p. 147; *T. incertus* P., *Dysithamnus* P., p. 149; *Herpsilochmus atricapillus* N., *H. longirostris* N., p. 150; *H. dorsimaculatus* N., p. 151; *Myrmotherula assimilis* P., p. 152; *M. luctuosa* (Temm. msc.), *M. longipennis* P., p. 153; *Formicivora melanogaster* N., p. 154; *F. leucophthalma* P., *F. ruficauda* N., p. 155; *F. bicolor* N., p. 156; *Terenura melanoleuca* N., *Rhamphocaenus collaris* N., p. 157; *Cercomacra approximans* P., *C. ruficauda* P., p. 158; *Percnostola minor* P., p. 159; *P. leucostigma* (Natt. et Lafres. msc.), p. 160; *Sclerurus rufigularis* N., *Heterocnemis albiventris* P., p. 161; *Myrmecisa* [sic] *squamosa* N., p. 162; *Hypocnemis flavescens* (N.) Scl., p. 163; *H. maculicauda* P., p. 164; *H. margaritifera* P., p. 165; *Pithys cristata* N., p. 166; *P. griseiventris* P., *Phlogopsis erythroptera* (Gould), p. 167; *Grallaria imperator* N., *Attila validus* P., p. 169; *A. rufigularis* P., p. 170; *A. phoenicurus* N., p. 171; *Todirostrum guttatum* P., p. 172; *Euscarthmus zosterops* P., *E. latirostris* P., *E. senex* P., p. 173; *E. inornatus* P., *Hapalocercus rufomarginatus* P., p. 174; *Phyllomyias subviridis* N., p. 175; *P. lividus* (Temm. msc.), *Elainea spectabilis* P., p. 176; *E. cristata* P., *E. albivertex* P., p. 177; *E. parvirostis* [sic—lege *-rostris*] P., p. 178; *E. elegans* P., *E. ruficeps* P., p. 179; *E. littoralis* N., *E. cinerea* P., p. 180; *Rhynchocyclus assimilis* P., *Pitangus parvus* P., *Empidochanes poecilocercus* P., p. 181; *Myiarchus cantans* P., *M. tricolor* N., p. 182; *M. gracilirostris* P., *Tityra* (*Erator*) *leucura* N., p. 183; *Lipaugus virussú* N., p. 184; *Heteropelma rufum* N., *H. chrysocephalum* P., p. 185; *Heterocercus flavivertex* P., *Pipra opalizans* P., p. 186; *P. virescens* P., p. 187.—Abth. III, 1870. *Passeres Conirostres*, *Scansores*, *Columbae*, *Gallinae*, *Struthiones*, *Grallae*, *Anseres*, pp. 189–326. Beschreibung neuer oder wenig gekannter Arten, pp. 326–344. *Leistes erythrothorax* N., p. 326; *Euphona ochrascens* P., *Tachyphonus nattereri* P., p. 328; *Oryzoborus? fringilloides* P., 1868–70. Pelzeln, A. v.—Continued.

p. 329; *Spermophila superciliaris* N., p. 330; *S. caboclinho* N., *S. melanops* N., p. 331; *S. melanogaster* N., *Haplospiza? crassirostris* N., p. 332; *Sycalis citrina* N., p. 333; *Picumnus aurifrons* N., *P. borbae* P., p. 334; *P. leucogaster* N., *P. fuscus* N., p. 335; *Peristera cyanopis* N., p. 336; *Leptoptila reichenbachii* P., *Penelope ochrogaster* N., p. 337; *P. boliviana* "Reich.", p. 339; *P. pileata* "Licht.", p. 340; *P. nigricapilla* "Gray", p. 341; *Crax pinima* N., p. 341; *C. mikani* P., p. 343. Betrachtungen über die ornithologische Fauna Brasiliens, pp. 344–390.—Abth. IV, 1870. Fundorte der Vögel Brasiliens nach den hauptsächlichen Quellen, pp. 391–462; Summa der in Brasilien beobachteten Arten, 1680.—Zusätze.—Index.

The work also includes a disquisition on the faunal divisions of Brazil as determined from its *Ornis*. Four subregions are laid down, and mapped, with tabular exhibits of their characteristic species. These are termed the Columbian, Amazonian, South Brazilian, and Chileno-Patagonian. The summary list of 1,680 Brazilian species is compiled from various sources, as Maximilian, Spix, Burmeister, and Wallace.

Cf. *Zeitschr. f. d. ges. Naturw.*, 1867, p. 537; *Ibis*, 1868, pp. 226, 227; 1869, pp. 113–117; 1870, pp. 272–274; *Zool. Gart.*, 1868, p. 40; *Zool. Rec.*, v, pp. 55, 56; vi, p. 51.

"John Natterer has been called a model traveller, and the most energetic and successful ornithological collector that ever lived. He explored Brazil from 1817 to 1835, securing 12,293 bird-skins, beautifully prepared and fully labelled, representing about 1,200 spp., besides registering various additional items of information. He died in his prime, on his return to Europe, leaving his collection, almost untouched, in the Imperial Cabinet of Zoology at Vienna. For nearly thirty years little was done to render his labors available in the cause of science, though instances of 'Natt. MSS.' were of not infrequent occurrence in different quarters. Upon the accession of Pelzeln to the charge of the collection, he began to work upon the material, and publish the results, with selections from Natterer's MSS. His numerous papers, which were received with favor, may be considered preliminary to the present work, which undertakes a complete exposition of Natterer's labors and results."

1869. Bishop, N. H. The Pampas and Andes. | — | A | Thousand Miles' Walk | across | South America. | By | Nathaniel H. Bishop. | — | With an Introduction | by | Edward A. Samuels, Esq., | author of "Ornithology and Oölogy of New England," | etc., etc. | — | Boston: | Lee & Shepard. | 1869. 1 vol. 8vo. 1 p. l., pp. 310.

Slightly ornithological *passim*.

1869. Cunningham, R. O. [Letter on Birds seen in the Straits of Magellan.] < *Ibis*, 2d ser., v, 1869, pp. 232–234.

Two earlier letters appeared in *Ibis*, 1868, pp. 122–129, 486–495.

1869. Frantzius, A. v. Ueber die geographische Verbreitung der Vögel Costaricas und deren Lebensweise. < *J. f. O.*, xvii, 1869, pp. 195–204, 289–318, 361–379.

The natural and proper complement to Cabanis's technical articles upon the same avifauna in *J. f. O.*, 1861–69, *q. v.* 518 spp. known to him as Costa Rican, with occasional notes on them. The paper has special reference to Lawrence's *Catalogue*, 1868–69, *q. v.* Cf. Salvin, *Ibis*, 1870, pp. 107–116.

1869. Goering, A. Excursion a algunas cuevas hasta ahora no esploradas (al sureste de Caripe). < *Vargasia*, No. 5, 1869, pp. 124–128.

Contains an account of *Steatornis caripensis*. (Cf. *Ibis*, 1870, p. 522.)

1869. Habel, *Dr.* —. [Exhibition of some Birds from the Galapagos Islands.] < *P. Z. S.*, xxxvii, 1869, p. 433.

The collection contained about 70 spp., some supposed to be new, but no particulars are given. Cf. *Comptes Rendus*, lxix, pp. 273–277; *P. Z. S.*, May, 1870, pp. 322–327.

1869. Lawrence, G. N. List of a Collection of Birds from Northern Yucatan. < *Ann. Lyc. Nat. Hist. New York*, ix, 1869, pp. 198–210.

103 spp.—*Contopus schottii*, p. 202; *Zenaidura yucatanensis*, p. 207, spp. nn. Cf. *Ibis*, 1870, p. 280; *Zool. Rec.*, 1869, p. 50.

1869. Lawrence, G. N. Catalogue of Birds from Puna Island, Gulf of Guayaquil, in the Museum of the Smithsonian Institution, collected by J. F. Reeve, Esq. < *Ann. Lyc. Nat. Hist. New York*, ix, 1869, pp. 234–238.

Turdus reevei, p. 234; *Thryothorus superciliaris*, p. 235; *Empidonax griseipectus*, p. 236; *Contopus punensis*, p. 237, spp. nn.—21 spp. Cf. *Ibis*, 1870, p. 281.

1869. Lawrence, G. N. Characters of some New South American Birds, with Notes on other rare or little known species. <*Ann. Lyc. Nat. Hist. New York*, ix, 1869, pp. 265–275.

Turdus hauxwelli, p. 265; *Ochthoëca rufomarginatus*, *Mecocerculus uropygialis*, p. 266; *Pogonotriccus plumbeiceps*, *Myiozetetes rufipennis*, p. 267; *M. inornatus*, p. 268; *Lesbia ortoni*, p. 269; *Accipiter nigroplumbeus*, p. 270, spp. nn. Cf. *Ibis*, 1870, p. 281.

1869. Lawrence, G. N. Description of Seven New Species of American Birds from various localities, with a note on Zonotrichia melanotis. <*Proc. Acad. Nat. Sci. Phila.*, xx, 1868 [pub. 1869], pp. 359–362.

Dendrœca capitalis, p. 359; *Tachyphonus atricapillus*, p. 359; *Quiscalus fortirostris*, p. 360; *Thamnophilus virgatus*, p. 361; *Pipra* (?) *cinnamomea*, p. 361; *Rhynchocyclus marginatus*, p. 361; *Harpagus fasciatus*, p. 361. Cf. *Ibis*, 1870, p. 280.

1869. Rogers, H. Natural-History Notes from Rio. <*Zoologist*, 2d ser., iv, 1869, pp. 1923, 1925.

1869. Salvin, O. Notes on Mr. Lawrence's List of Costa-Rica Birds [in Ann. Lyc. Nat. Hist. N. Y., ix, pp. 86–149]. <*Ibis*, 2d ser., v, 1869, pp. 310–319.

A detailed critical commentary. Makes 13 different determinations, expunges 14 spp., and adds 13 others—40 changes in 474 spp. This article relates only to the first portion of Mr. Lawrence's catalogue, the Land Birds.—Continued in *Ibis*, 1870, pp. 107–116, *q. v.*

1869. Sclater, P. L. On the Birds of the Vicinity of Lima, Peru. With Notes on their Habits; by Prof. W. Nation, of Lima. (Part III.) <*P. Z. S.*, xxxvii, 1869, pp. 146–148, pl. xii.

Continued from *P. Z. S.*, 1867, p. 344.—13 spp. The pl. represents *Neorhynchus* (g. n.) *nasesus* (lettered *maseus* on the pl.).—Continued, *P. Z. S.*, 1871, pp. 496–498.

1869. Sclater, P. L., *and* Salvin, O. Second [cf. Ibis, 1868, p. 183] List of Birds collected, during the Survey of the Straits of Magellan, by Dr. Cunningham. <*Ibis*, 2d ser., v, 1869, pp. 283–286.

33 spp. Note on *Zonotrichia canicopilla* and synonymatic and diagnostic notice of *Phrygilus gayi* and *P. aldunatii*.—Continued, *Ibis*, 1870, pp. 499–504.

1869. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. Whitely. Part IV. <*P. Z. S.*, xxxvii, 1869, pp. 151–158, pl. xiii.

Cf. *P. Z. S.*, 1867, p. 982; 1868, pp. 173, 568. 46 spp. *Saltator laticlavius*, p. 151; *Poospiza cæsar*, p. 152, pl. xii; *Agriornis insolens*, p. 153; *Centrites oreas*, p. 154, spp. nn. Critical and field-notes.—Continued, *P. Z. S.*, 1869, pp. 596–601.

1869. Sclater, P. L., *and* Salvin, O. Second List of Birds collected at Conchitas, Argentine Republic, by Mr. William H. Hudson; together with some notes upon another Collection from the same locality. <*P. Z. S.*, xxxvii, 1869, pp. 158–162.

Cf. *P. Z. S.*, 1868, p. 137. 14 spp. in one coll., 10 in the other; with critical notes.

1869. Sclater, P. L., *and* Salvin, O. On Venezuelan Birds collected by Mr. A. Goering. Part III. <*P. Z. S.*, xxxvii, 1869, pp. 250–254, pl. xviii.

Cf. *P. Z. S.*, 1868, pp. 165, 626. Sketch of locality; nominal list of 56 spp., with notes on 9 of them. *Brachygalba goeringi*, p. 253, pl. xviii, sp. n.—Continued, *P. Z. S.*, 1870, pp. 779–788.

1869. Sclater, P. L., *and* Salvin, O. Descriptions of Six New Species of American Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicariidæ, Tyrannidæ, and Scolopacidæ. <*P. Z. S.*, xxxvii, 1869, pp. 416–420, pl. xxviii.

Calliste florida, p. 416, pl. xxviii; *Synallaxis arequipæ*, *Gymnocichla chiroleuca*, p. 417; *Grallaria princeps*, p. 418 (with list of 6 spp.); *Contopus ochraceus*, *Gallinago imperialis*, p. 419.

1869. Sclater, P. L., *and* Salvin, O. On two new Birds collected by Mr. E. Bartlett in Eastern Peru. <*P. Z. S.*, xxxvii, 1869, pp. 437–439, pl. xxx.

Neopipo (g. n.) *rubicunda*, p. 438, pl. xxx, f. 3; *Euphonia chrysopasta*, p. 438, pl. xxx, figg. 1, 2.

1869. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. Whitely.—Part V. <*P. Z. S.*, xxxvii, 1869, pp. 596–601.

Continued from *P. Z. S.*, 1869, pp. 151–158.—42 spp. from Cosnipata, 4 annotated; about 57 from Tinta, 13 of which are annotated as additional to former lists. *Ochthoeca polionota*, p. 599; *Merganetta turneri*, p. 600, spp. nn.

1869. Sclater, P. L., *and* Salvin, O. Third List of Birds collected at Conchitas, Argentine Republic, by Mr. William H. Hudson. <*P. Z. S.*, xxxvii, 1869, pp. 631-636.

Cf. *P. Z. S.*, 1868, p. 137; 1869, p. 158. 92 spp., with remarks on 34 of them.

1869. Sternberg, C. Notizen aus der Vogelwelt von Buenos-Ayres. <*J. f. O.*, xvii, 1869, pp. 174-193, 257-278.

Lebensweise—35 spp.

1869? Sundevall, C. J. Foglarne på ön S:t Barthelemy, efter de af Dr. A. von Goës hemsända samlingarna bestämde af Carl J. Sundevall. < *Öfvers. Konigl. Vetensk.-Akad. Förh.*, 1869, pp. 579-591.

47 spp. Some new "Stirpes" are indicated.—Compare 1870?, same author.

1869? Sundevall, C. J. Foglarne på ön Portorico, efter Hr Hjalmarsons insamlingar framställda af Carl J. Sundevall. < *Öfvers. Konigl. Vetensk.-Akad. Förh.*, 1869, pp. 593-603.

90 species.—Compare 1870?, same author.

1870. Ernst, A. Apuntes para la fauna ornitologica de Venezuela. < *Vargasia*, núm. 7, 1870, pp. 195-198, con una lámina.

Estracto de las publicaciones de P. L. Sclater y O. Salvin sobre las colecciones de pájaros venezolanos hechas por Antonio Goering; *Proc. Zool. Soc.* 27 de Febrero (p. 165) y 10 de Diciembre (p. 626) de 1868, y 22 de Abril (p. 250) de 1869. Lám., *Brachygalba goeringi*, *Sublegatus glaber*, *Euscarthmus impiger*.

1870. Finsch, O. On a Collection of Birds from the Island of Trinidad. <*P. Z. S.* xxxviii, 1870, pp. 552-589.

115 spp., critically annotated. The article includes local synonymy and review of previous labors (especially Léotaud's) upon the same subject. *Spermophila lessoni*, sp. renom., p. 582. About 350 spp. are known to occur in Trinidad.

1870. Holtz, Ludwig. Beschreibung südamerikanischer Vögel-Eier. <*J. f. O.*, xviii, 1870, pp. 1-24, pl. i.

Supplementary to C. Sternberg's articles on Birds of Buenos Ayres in *J. f. O.*, 1869, pp. 174-193, 257-278. Eggs of 46 spp. described. Those of *Molobrus sericeus* (fig. 1) and *M. badius* (fig. 2) figured, as well as those of *Opisthocomus cristatus* (fig. 3).

1870. Hudson, W. H. [First Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 87-89.

The beginning of a series of 12 letters, giving miscellaneous information upon the subject.

1870. Hudson, W. H. [Second Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 112-114.

1870. Hudson, W. H. [Third Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 158-160.

1870. Hudson, W. H. [Fourth Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 332-334.

1870. Hudson, W. H. [Fifth Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 545-547.

1870. Hudson, W. H. [Sixth Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 548-550.

1870. Hudson, W. H. [Seventh Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 671-673.

1870. Hudson, W. H. [Eighth Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 748-750.

1870. Hudson, W. H. [Ninth Letter on the Ornithology of Buenos Ayres.] <*P. Z. S.*, xxxviii, 1870, pp. 798-802.

For Letters 10-12 see 1871, same author.

1870. Newton, A. Additional Note on the Nests and Eggs collected by Dr. Cunningham. <*Ibis*, 2d ser., vi, 1870, pp. 501-504.

The nests or eggs of 15 spp. of South American birds are described.

1870. Reinhardt, J. Bidrag til Kundskab om Fuglefaunaen i Brasiliens Campos. < *Vidensk. Meddel. Naturhist. Foren. Kjöbenhavn*, 1870, pp. 1–124, 315–457, pl. viii.

Elaenia lundi, p. 344, pl. 8, f. 1; *Myiopatis superciliaris* (Lund), p. 346, pl. 8, f. 2, spp. nn.

1870. Reinhardt, J. Bidrag til Kundskab om Fuglefaunaen i Brasiliens Campos. Kjöbenhavn. 1870. 8vo. pp. 1–267, pl. viii.

Based on collections of the author and P. W. Lund in 1833–35, in the Brazilian Provinces of São Paulo, Goyaz, and Minas Geraes. Annotated list of 393 spp. *Elainia lundii*, p. 154, pl. viii, and *Myiopatis superciliaris*, p. 156, pl. viii, spp. nn.—Cf. *Journ. de Zool.*, i, 1872, pp. 75–77.

1870. Salvin, O. Additional Notes on Mr. Lawrence's List of Costa-Rica Birds. < *Ibis*, 2d ser., vi, 1870, pp. 107–116.

Continued from *Ibis*, 1869, pp. 310–319, *q. v.*—Adds 19 spp. to Lawrence's List. Contains much criticism, and includes a synonymatic synopsis of three species of *Capito*, important as showing that the opposite sexes of each had generally been rated as different species.

1870. Salvin, O. On some Collections of Birds from Veragua.—Part II. < *P. Z. S.*, xxxviii, 1870, pp. 175–219, pl. xvii (map).

Cf. *P. Z. S.*, 1867, pp. 129–161, which gave 216 spp. In this paper are 216 more, making the whole avifauna 432.—*Thryothorus semibadius*, p. 181; *Empidonax atriceps*, p. 198; *Chiromachœris aurantiaca*, p. 200; *Antrostomus saturatus*, p. 203; *Chœtura fumosa*, p. 204; *Lophornis adorabilis*, p. 207; *Selasphorus torridus*, p. 208; *S. ardens*, p. 209; *Chloronerpes simplex*, p. 212; *Melanerpes chrysauchen*, p. 213, spp. nn. The paper gives a general summary of the avifauna, and much critical matter on the characters and distribution of the species.

1870. Sclater, P. L. On some new or little-known Birds from the Rio Paraná. < *P. Z. S.*, xxxviii, 1870, pp. 57, 58, pl. iii, with cut.

Various species mentioned. *Cnipolegus cinereus*, sp. n., p. 58, woodc.; *Coraphistera alaudina*, p. 57, pl. iii.

1870. Sclater, P. L. Notices of some new or little-known Species of South-American Birds. < *P. Z. S.*, xxxviii, 1870, pp. 328–330.

Philydor consobrinus, p. 328; *Melanerpes pulcher*, p. 330, spp. nn.—Synopsis of 2 spp. of *Chœtura*: *Chœtura brachycerca*, p. 329; *Thryothorus rufiventer* "Natt.", p. 328.

1870. Sclater, P. L., *and* Salvin, O. Third [cf. Ibis, 1869, p. 283] List of Birds collected, during the Survey of the Straits of Magellan, by Dr. Cunningham. With additional Note by A. Newton. < *Ibis*, 1870, 2d ser., vi, pp. 499–504.

33 spp., with notes on 3 of them. The article includes "Additional note on the Nests and Eggs collected by Mr. Cunningham. By the Editor" (A. Newton). 15 spp. are described.

1870. Sclater, P. L., *and* Salvin, O. Characters of new Species of Birds collected by Dr. Habel in the Galapagos Islands. < *P. Z. S.*, xxxviii, 1870, pp. 322–327, woodc.

Certhidea fusca, p. 324, fig. 1; *Camarhynchus variegatus*, p. 324, fig. 2; *C. habeli*, p. 325, fig. 3; *C. prosthemelas*, p. 325, fig. 4; *Cactornis abingdoni*, p. 326, fig. 5; *Cactornis pallida*, p. 327, fig. 6; *Nycticorax pauper*, p. 327, spp. nn. List of 37 spp. collected.

1870. Sclater, P. L., *and* Salvin, O. On Venezuelan Birds collected by Mr. A. Goering. Part IV. < *P. Z. S.*, xxxviii, 1870, pp. 779–788, pll. xlvi, xlvii.

Continued from *P. Z. S.*, 1869, pp. 250–254.—Nominal list of 106 spp., with notes on many of them. *Setophaga albifrons*, *Diglossa gloriosa* (pl. xlvi, f. 1), *Chlorospingus goeringi* (pl. xlvi, f. 2), p. 784; *Buarremon meridæ*, p. 785; *Grallaria griseonucha*, *Ochthoëca superciliosa*, p. 786; *O. nigrita*, *Conurus rhodocephalus*, p. 787; *Urochroma delectissima*, pl. xlvii, p. 788, spp. nn.

1870. Sclater, P. L., *and* Salvin, O. On Birds collected by Mr. George M. Whitely on the Coast of Honduras. < *P. Z. S.*, xxxviii, 1870, pp. 835–839.

135 spp., a few of which are annotated.

1870. Sclater, P. L., *and* Salvin, O. Descriptions of five new Species of Birds from the United States of Columbia. < *P. Z. S.*, xxxviii, 1870, pp. 840–844, pl. liii.

Pheucticus uropygialis, *Synallaxis wyatti*, p. 840; *Tyranniscus leucogonys*, pl. liii, f. 1; *T. improbus*, f. 2; *T. griseiceps*, f. 3, p. 841; *Trogon chionurus*, p. 843. Synopsis of 9 spp. of the genus *Tyranniscus*.

1870? Sundevall, C. J. Foglarne på ön S:t Barthelemy, efter de af Dr A. von Goës hemsände samlingarna bestamde af Carl J. Sundevall. < *Öfvers. Konigl. Vetensk.-Akad. Förhandl. för år* 1869, 1870?, pp. 579–591.

Treating 47 spp. at greater or less length, after a notice of the general subject.—Diagnosis of 3 spp. of the genus *Phaëthon*.—Compare 1869?, same author.

1870? Sundevall, C. J. Foglarne på ön Portorico, efter Hr Hjalmarsons insamlingar framställda af Carl J. Sundevall. < *Öfvers. Konigl. Vetensk.-Akad. Förhandl. för år* 1869, 1870?, pp. 593-604.

Treats of upward of 100 spp. Interspersed with the notes on the collection are many critical observations in the author's well-known quiet and pithy style.—Compare 1869?, same author.

1871. Bello y Espinosa, —. Zoologische Notizen aus Puerto Rico von Herrn Bello y Espinosa daselbst. Nach dem Spanischen frei bearbeitet von Herrn E. von Martens in Berlin. <*Der Zoolog. Garten*, 1871, pp. 348-351.

Von der Classe der Vögel sind 64 Arten bekannt.

1871. Cunningham, R. O. Notes on | the Natural History | of the | Strait of Magellan | and West Coast of Patagonia | made during the voyage of H. M. S. 'Nassau' | in the years 1866, 67, 68, & 1869 | By | Robert O. Cunningham, | M. D., F. L. S., etc. | Naturalist to the Expedition | With Map and Illustrations | Edinburgh | Edmonston and Douglas | 1871 | All rights reserved 1 vol. 16mo. pp. i-xviii, 1-517, 22 illust., some colored.

Ornithological matter *passim*. Previous publication of much of the author's material is found in *Ibis*, 1868, p. 183; 1869, p. 283; and 1870, p. 499; and in his letters to the same journal, *qq. vv. suprà*.—Fig. 6, head of Steamer Duck (*Micropterus*).

1871. Cunningham, R. O. On the Terrestrial and Marine Fauna of the Strait of Magellan and Western Patagonia. < *Rep. Brit. Ass. Adv. Sci. for* 1870, 1871, (*Misc. Comm.*), p. 114.

Mere allusions to a few birds.

1871. Hamilton, J. F. Notes on Birds from the Province of Saõ Paulo, Brazil. <*Ibis*, 3d ser., i, 1871, pp. 301-309.

Field-notes on 45 spp. observed in the spring of 1869.

1871. Hudson, W. H. [Tenth Letter on the Ornithology of Buenos Ayres.] < *P. Z. S.*, xxxix, 1871, pp. 4-7.

For Letters 1-9, see 1870, same author.

1871. Hudson, W. H. [Eleventh Letter on the Ornithology of Buenos Ayres.] < *P. Z. S.*, xxxix, 1871, pp. 258-262.

1871. Hudson, W. H. [Twelfth Letter on the Ornithology of Buenos Ayres.] < *P. Z. S.*, xxxix, 1871, pp. 326-329.

1871. Juliet, C. Esploracion científica practicada por órden del Supremo Gobierno i segun las instrucciones del doctor don R. A. Philippi, . . . <*Anales Univ. Chile*, tomo xli, ent. de julio 1871, pp. 81-168, pll.

A few birds are mentioned here and there in running narrative. The illustrations do not relate to birds.

1871. Lawrence, G. N. Descriptions of New Species of Birds from Mexico, Central America, and South America, with a Note on Rallus longirostris. <*Ann. Lyc. Nat. Hist. N. Y.*, x, 1871, pp. 1-21.

Harporhynchus graysoni Baird, MS., p. 1; *Cistothorus aequatorialis*, p. 3; *Troglodytes insularis* Bd. MS., p. 3; *Parula insularis*, p. 4; *Haemophila sumichrasti*, p. 6; *Pipilo carmani*, p. 7; *Attila cinnamomeus*, p. 8; *Todirostrum superciliaris*, p. 9; *Elainea macilvainii*, p. 10; *Empidonax fulvipectus*, *Trogon eximius*, p. 11; *Chlorostilbon caribæus*, p. 13; *Conurus holochlorus* var. *brevipes* Bd. MS., p. 14; *Leptoptila bonapartii*, p. 15; *Zenaidura graysoni* Bd. MS., p. 17; *Vireosylvia magister* Bd. MS., p. 20. Interesting field-notes of Col. A. J. Grayson's accompany several of the species. The note on *Rallus longirostris* states that with this species *R. crassirostris* Lawr. from Bahia agrees, it being apparently different from *R. crepitans* Gm.

1871. Lawrence, G. N. Descriptions of three New Species of American Birds, with a Note on Eugenes spectabilis < *Ann. Lyc. Nat. Hist. N. Y.*, x, 1871, pp. 137-140.

Mimus nigriloris, p. 137 (Mexico); *Buarremon sordidus*, p. 138 (Bogotá); *Serpophaga grisea*, p. 139 (Costa Rica). Distinctness of *E. spectabilis* reiterated.

1871. Orton, J. Contributions to the Natural History of the Valley of Quito.—No. I. <*Amer. Nat.*, v, No. 10, Oct., 1871, pp. 619-626.

Birds, pp. 623-626.—Annotated list of 184 spp., 38 of which are believed to be confined to the valley; followed by general remarks on geographical distribution.

1871. ORTON, J. Notes on some Birds in the Museum of Vassar College. < *Amer. Nat.*, iv, No. 12, Feb., 1871, pp. 711–717.

Observations on 50 or more spp., the greater part of the notes relating to neotropical birds. At time of writing, Vassar College contained nearly 1,200 spp., of which about 700 were N. and 600 S. American; among them several type-specimens, and others of interest as the originals of Audubon's plates.

1871. ORTON, J. On the Condors and Humming-birds of the Equatorial Andes. < *Ann. Mag. Nat. Hist.*, (4), viii, 1871, pp. 185–192.

1871. ORTON, J. The Vultures and Humming Birds of Tropical America. < *Canad. Nat. & Quart. Journ.*, n. s., v, 1871, pp. 357–360.

Abstract of his paper in *Amer. Nat.*

1871. SCLATER, P. L. On the Land-birds of Juan Fernandez. < *Ibis*, 3d ser., i, 1871, pp. 178–183, pl. vii.

Sketch of the islands; 6 spp., with comment. Pl. vii, f. 1, *Anœretes fernandezianus;* f. 2, *Oxyurus masafueræ.*

1871. SCLATER, P. L. The Birds of the Lesser Antilles. < *Nature*, iv, 1871, pp. 473 – —.

Not seen.

1871. SCLATER, P. L. [Extracts from Correspondence with Mr. G. W. des Vœux concerning the expediency of introducing Secretarius reptilivorus or Dacelo gigas for destruction of the Rat-tailed Serpent of Santa Lucia (Trigonocephalus lanceolatus).] < *P. Z. S.*, xxxix, 1871, pp. 2–4.

1871. SCLATER, P. L. On the Birds of the Island of Santa Lucia, West Indies. < *P. Z. S.*, xxxix, 1871, pp. 263–273, pl. xxi.

Summary of Antillean avifauna; 25 spp., variously annotated. *Icterus laudabilis*, pl. xxi, p. 270.

1871. SCLATER, P. L. On the Birds of the Vicinity of Lima, Peru. . . . With Notes on their Habits; by Prof. W. Nation, of Lima, C. M. Z. S.—Part IV. < *P. Z. S.*, xxxix, 1871, pp. 496–498, fig.

Continued from *P. Z. S.*, 1869, p. 148.—5 spp. *Euscarthmus fulviceps*, p. 497, fig., sp. n.

1871. SCLATER, P. L. Remarks on a Collection of Birds from Oyapok [Cayenne]. < *P. Z. S.*, xxxix, 1871, pp. 749, 750.

Ochthoëca murina, p. 749; *Heteropelma igniceps*, p. 750, spp. nn. Synopsis of 16 + 3 spp. of *Ochthoëca.*

1871. SUNDEVALL, C. J. On Birds from the Galapagos Islands. < *P. Z. S.*, xxxix, 1871, pp. 124–130.

A list of 26 spp., of which two are new (*Ardea plumbea*, pp. 125, 127–129, and *Spheniscus mendiculus*, pp. 129, 130; also a new variety of *Ardea violacea*), obtained by the Swedish 'Eugenie' expedition in 1852. Remarks on the species allied to some of those recorded are added. Some are noticed from the Galapagos for the first time.

1871. WYATT, C. W. Notes on some of the Birds of the United States of Columbia. <*Ibis*, i, 1871, 3d ser., pp. 113–131, pl. v (map), 319–335, 373–384.

Extended account of the region and route; field-notes on 210 spp.; map of author's journey.

1871–74. GUNDLACH, J. Neue Beiträge zur Ornithologie Cubas. < *J. f. O.*, xix, 1871, pp. 265–295, 353–378; xx, 1872, pp. 401–432; xxii, 1874, pp. 113–166, 286–303.

There are literal discrepancies in the titles of the successive instalments. The first part is wholly occupied with a review of what has been done on the subject, from Macleay (1827) to the author himself (1865–66). The second begins The Revised List of Cuban Birds.

1872. ANON. Zoology of the Galapagos. < *Pop. Sci. Monthly*, Sept., 1872, pp. 633–635.

Various allusions to the birds.

1872. EDITORS. New Galapagos Birds. <*Am. Nat.*, vi, 1872, p. 38.

Notice of Scl. & Salv., *P. Z. S.*, May, 1870, on Dr. Habel's discoveries.

1872. HUDSON, W. H. On the Birds of the Rio Negro of Patagonia. With Notes by P. L. Sclater. < *P. Z. S.*, xl, 1872, pp. 534–550, fig., pl. xxxi.

Field-notes on 23 spp., technical names of most of which are supplied by Dr. Sclater, who appends a nominal list of 48 spp. of the region, 7 of them peculiar to it.—*Cnipolegus hudsoni*, Scl., p. 541, pl. 31, sp. n.

1872. Landbeck, L. Sobre algunos pájaros chilenos. <*Anales Univ. Chile*, xli, Aug., 1872, pp. 515-519.

Sterna trudeaui, *Conurus cyanolyseos*, i *Sterna galericulata*.

1872. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Icterus and Synallaxis. <*Ann. Lyc. Nat. Hist. N. Y.*, x, 1872, pp. 184-186.

Icterus formosus, p. 184 (Tehuantepec); *Synallaxis maculata*, p. 186 (Tumbe, Peru).

1872. Layard, E. L. [Letter relating to birds seen during a voyage from England to Pará.] <*Ibis*, 3d ser., ii, 1872, pp. 336-338.

1872. [Salvin, O.] [Notice of E. L. Layard's departure for Pará, South America.] *Ibis*, 3d ser., ii, 1872, p. 208.

1872. Salvin, O. Notes on the Birds of Nicaragua, based upon a Collection made at Chontales by Mr. Thomas Belt. <*Ibis*, 3d ser., ii, 1872, pp. 311-323.

130 specimens of 73 spp. Sketch of history of the subject; general characters of the avifauna of the region.

1872. [Salvin, O.] [Notice of G. A. Maack's researches in the vicinity of Panamá.] <*Ibis*, 3d ser., ii, 1872, pp. 339, 340.

1872. Semper, J. E. Observations on the Birds of St. Lucia. With Notes by P. L. Sclater. <*P. Z. S.*, xl, 1872, pp. 647-653.

Cf. *P. Z. S.*, 1871, p. 263. Notes on 25 spp. contained in the former list, and on 6 additional ones.

1872. Sperling, R. M. [Letter.] <*Ibis*, 3d ser., ii, 1872, pp. 74-79.

Refers to various South American birds and some *Procellariidæ*.

1873. Cabanis, J. [Neue peruanische Vögel des Herrn C. Jelski.] <*J. f. O.*, 1873, pp. 64-68.

Hylophilus flaviventris, *Dacnis modesta*, p. 64; *Hypocnemis subflava*, *Thamnistes rufescens*, *Lochmias obscurata*, p. 65; *Phylydor subflavescens*, *Ipoborus* (*Automolus*) *stictoptilus*, p. 66; *Sclerurus olivaceus*, *Euscarthmus rufigularis*, *Phyllomyias cinereicapillus*, p. 67; *Capsiempis orbitalis*, *Hadrostomus audax*, p. 68, spp. nn.

1873. Cabanis, J. [Neue Vögel des Berliner Museums, von C. Jelski in Peru entdeckt.] <*J. f. O.*, 1873, pp. 315-320, pl. iv, f. 3; 1874, pl. ii.

Turdus gigantodes, p. 315; *Basileuterus diachlorus*, *Myiothlypis striaticeps*, *Iridornis jelskii*, p. 316 (pl. ii, f. 1, Jahrg. 1874); *Poecilothraupis ignicrissa*, *Presbys peruanus*, p. 317; *Diglossa pectoralis*, *Chlorospingus* (*Hemispingus*) *auricularis*, *Hypsibamon andicolus*, p. 318, pl. iv, f. 3; *Cillurus rivularis*, *Synallaxis humilis*, *S. albicapilla*, *Schizoeaca palpebralis*, p. 319 (pl. ii, fig. 2, Jahrg. 1874); *Mitrephorus ochraceiventris*, p. 320.

1873. Layard, E. L. [Letter on Birds observed on a Voyage from Pará to England.] <*Ibis*, 3d ser., iii, 1873, pp. 331, 332.

1873. Layard, E. L. Notes on Birds observed at Para. . . . With Descriptions of two new Species. By P. L. Sclater. <*Ibis*, 3d ser., iii, 1873, pp. 374-396, pll. xiv, xv.

List of 120 spp., quite fully annotated. *Picolaptes layardi*, p. 386, pl. xiv; *Thamnophilus simplex*, p. 387, pl. xv, spp. nn.

1873. Lee, W. B. Ornithological Notes [on 33 spp.] from the Argentine Republic. <*Ibis*, 3d ser., iii, 1873, pp. 129-138.

1873. Leybold, F. Escursion a las Pampas Argentinas. Hojas de mi diario. Por Frederico Leybold. Santiago. 1873. 8vo. pp. 108, map.

Not seen.—Many notes on the birds observed or obtained. *Columbina aurisquamata*, p. 38; *Conurus glaucifrons*, p. 38, spp. nn.

1873. Mathew, G. F. Natural-History [Ornithological] Notes from Coquimbo. <*Zoologist*, 2d ser., viii, 1873, pp. 3578, 3579.

1873. Pelzeln, A. v. Verzeichniss einer an Dr. L. W. Schaufuss gelangten Sendung Vögel aus Neu-Freiburg in Brasilien. <*Nunquam Otiosus*, 1873, pp. 291, 292.

Not seen.

1873. Salvin, O. [Letter off St. Domingo, noting various Birds observed en route.] <*Ibis*, 3d ser., iii, 1873, pp. 333, 334.

1873. Salvin, O. [Letter relating to some Guatemalan Birds.] <*Ibis*, 3d ser., iii, 1873, pp. 428, 429.

1873. Sclater, P. L. Additions to the List of Birds of Nicaragua. <*Ibis*, 3d ser., iii, 1873, pp. 372, 373.

Adding 17 spp. to the list given in *Ibis*, 1872, pp. 311–323.

1873. Sclater, P. L. [Note on Sclater and Salvin's 'Nomenclator Avium Neotropicalium'.] <*P. Z. S.*, 1873, pp. 554, 555.

Gives the classification to be adopted in the work. Eliminates *Turdus subcinereus* and *Cnipolegus* sp. from the American avifauna.

1873. Sclater, P. L. [Descriptions of two new species of Birds from the State of Antioquia, Columbia.] <*P. Z. S.*, 1873, pp. 728, 729.

Chlorochrysea nitidissima, p. 728; *Grallaria ruficeps*, p. 729.

1873. Sclater, P. L. On Peruvian Birds collected by Mr. Whitely. Part VII. <*P. Z. S.*, 1873, pp. 779–784.

39 spp., with notes on some of them. *Thryophilus fulvus*, *Todirostrum pulchellum*, p. 781; *Tyranniscus viridissimus*, *Myiobius aureiventris*, p. 782; *Grallaria erythroleuca*, p. 783, spp. nn.

1873. Sclater, P. L., *and* Salvin, O. Nomenclator | Avium Neotropicalium | sive | avium | quæ in regione neotropica hucusque repertæ sunt | nomina systematice disposita adjecta sua cuique | speciei patria accedunt generum et | specierum novarum diagnoses. | Auctoribus | Philippo Lutley Sclater A. M. Phil. Doct. | Soc. Reg. Lond. Socio | Soc. Zool. Lond. Secretario. | Et Osberto Salvin A. M. | Soc. Reg. Lond. Socio. | — | [Icon.] | Londini: | — | MDCCCLXXIII. 1 vol. Fol. pp. viii, 163.

Avium omnium e regione Neotropica hucusque auctoribus obviarum tenet Nomenclator, secundum systema quo in opere adhuc inedito, sed jam per multos annos elaborato, cujus titulus "Index Avium Americanorum" usi sunt. Species asterisco nototæ neque in ornithotheca P. L. S. neque in Museo Salvino-Godmannico asservantur, sed in aliis locis auctoribus obviæ sunt.

Expositio ordinum classis avium in hoc opere usitatorum, adjecto in quoque ordine specierum numero. A. *Carinatae.* (I. *Aegithognathœ.*) 1. *Passeres*, 1976. 2. *Cypseli*, 444. 3. *Pici*, 116. (II. *Desmognathœ.*) 4. *Coccyges*, 214. 5. *Psittaci*, 142. 6. *Striges*, 37. 7. *Accipitres*, 114. 8. *Steganopodes*, 17. 9. *Herodiones*, 44. 10. *Anseres*, 64. (III. *Schizognathœ.*) 11. *Columbœ*, 66. 12. *Gallinœ*, 90. 13. *Opisthocomi*, 1. 14. *Grues*, 57. 15. *Limicolœ*, 73. 16. *Gaviœ*, 53. 17. *Pygopodes*, 9. 18. *Impennes*, 9. (IV. *Dromœognathœ.*) 19. *Crypturi*, 36.—B. *Ratitœ.* 20. *Apteryges*, 0. *Struthiones*, 3. Summa specierum Avium Neotropicalium, 3565.

Appendix, pp. 155–163, continens diagnoses generum et specierum, quorum nominibus in hoc opere pro prima vice usi sunt:—

P. 155: *Uropsila*, p. 7; *Phlogothraupis*, p. 21; *Porphyrospiza*, p. 30; *Clibanornis*, p. 61; *Microbates*, p. 72; *Nesoceleus*, p. 101. P. 156: *Gymnopelia*, p. 133; *Nothoprocta*, p. 153; *Calodromas*, p. 156; *Basileuterus leucopygius*, p. 10; *Hylophilus muscicapinus*, p. 12; *Cyclorhis albiventris*, p. 13. P. 157: *Chlorophanes purpurascens*, p. 16; *Euphonia chalcopasta*, p. 18; *Chlorospingus semifuscus*, p. 24; *Arremon wuchereri*, p. 25; *Haplospiza uniformis*, p. 29. P. 158: *Cnipolegus pusillus*, p. 43; *Euscarthmus wuchereri*, p. 45; *Serpophaga subflava*, p. 47; *S. pœcilocerca*, p. 47. P. 159: *Phyllomyias platyrhyncha*, p. 48; *Lipaugus immundus*, p. 57; *Casiornis fusca*, p. 57; *Furnarius agnatus*, p. 61. P. 160: *Philidor erythronotus*, p. 66; *Margarornis stellata*, p. 67; *Picolaptes puncticeps*, p. 69; *Thamnophilus tristis*, p. 69; *Myrmotherula pyrrhonota*, p. 72. P. 161: *Microbates torquatus*, p. 72; *Cercomacra carbonaria*, p. 73; *Rhinocrypta fusca*, p. 76; *Dendrocygna discolor*, p. 129. P. 162: *Querquedula andium*, p. 129; *Leptoptila rufinucha*, p. 134; *Odontophorus hypospodius*, p. 138; *Psophia napensis*, p. 141; *Tinamus ruficeps*, p. 152. P. 163: *Nothoprocta curvirostris*, p. 153.

1873. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. Whitely. Part VI. <*P. Z. S.*, 1873, pp. 184–187, pl. xxi.

Pl. xxi, *Tanagra olivina.* List of 80 spp.; comment on 7 of them. *Hapalocercus acutipennis*, p. 187, sp. n. (Continued, *P. Z. S.*, 1873, p. 779, by Sclater alone.)

1873. Sclater, P. L., *and* Salvin, O. On the Birds of Eastern Peru. With Notes on the habits of the Birds, by Edward Bartlett. <*P. Z. S.*, 1873, pp. 252–311, pll. xxv, (map) xxvi.

Important: contains a summary of nearly all that is accurately known of the birds of the region; complete list of previous papers, 7 in number, on the same subject; general geographical considerations; subdivisions of the Amazonian Fauna. 473 spp., of which 108 are peculiar to the Upper Amazonian Fauna. *Pithys lunulata*, p. 276, pl. xxvi; *Rhynchocyclus viridiceps*, p. 280, spp. nn.

1873. Sclater, P. L., *and* Salvin, O. On some Venezuelan Birds collected by Mr. James M. Spence. < *P. Z. S.*, 1873, pp. 511, 512.

8 spp.—*Lochmias sororia*, p. 511, *Crypturus cerviniventris*, p. 512, spp. nn.

1873–74. Berlepsch, H. Zur Ornithologie der Provinz Santa Catharina, Süd-Brasilien. <*J. f. O.*, 1873, pp. 225–293; 1874, pp. 241–284.

118 Arten, gut bearbeitet, namentlich in Bezug auf geographische Verbreitung.

1874. Cabanis, J. Uebersicht der von Herrn Carl Euler im District Cantagallo, Provinz Rio de Janeiro, gesammelten Vögel. <*J. f. O.*, 1874, pp. 81–90, 225–231.

Sporophila euleri, sp. n., p. 84; *Ceratotriccus*, g. n., p. 87. See 1867–69, Euler, C.

1874. Cabanis, J. [Neue peruanische Vögel des Herrn Jelski.] <*J. f. O.*, 1874, pp. 97–100.

Turdus nigriceps Jelski, *Urolampra eupogon*, p. 97; *Coprotretes jelskii*, *Euscarthmus pyrrhops*, *Mecocerculus taeniopterus*, p. 98; *Hemipipo tschudii*, *Metallura jelskii*, p. 100.

1874. Golz, —. [Notiz über die Guanolager Peru's.] <*J. f. O.*, 1874, pp. 343, 344.

1874. Gundlach, J. Beitrag zur Ornithologie der Insel Portorico. <*J. f. O.*, 1874, pp. 304–315.

116 spp.

1874. Juliet, C. Informe del ayudante de la comission esploradora de Chiloé i Llanquihue, don Carlos Juliet. <*Anales Univ. Chile*, tomo xlv, 1ª secc., Deciembre 1874, pp. 661–734.

A few birds are mentioned here and there in running narrative.

1874. Landbeck, L. Zur Ornithologie Chiles. <*Arch. f. Naturg.*, 1874, (1), pp. 112–116.

Behandelt *Sterna trudeaui*, *S. galericulata*, *Conurus cyanolyseos* und *C. patagonus*.

1874. Lawrence, G. N. Descriptions of Six Supposed New Species of American Birds. <*Ann. Lyc. Nat. Hist. N. Y.*, x, 1874, pp. 395–399.

Chlorospingus brunneus, p. 395 (Costa Rica); *C. axillaris*, p. 395 (Costa Rica); *Buarremon atricapillus*, p. 396 (Bogota?); *Phonipara fumosa*, p. 396 (Trinidad); *Cyanospiza rositæ*, p. 397 (Tehuantepec, Mex.); *Thripadectes virgaticeps*, p. 398 (Quito, Ecuador).

1874. Lawrence, G. N. Descriptions of Two New Species of Birds of the Families Tanagridæ and Tyrannidæ. <*Ann. Lyc. Nat. Hist. N. Y.*, xi, 1874, pp. 70–72.

Phaenicothraupis cristata, p. 70 (Bogota); *Myiarchus flammulatus*, p. 71 (Tehuantepec).

1874. Lawrence, G. N. Descriptions of Four New Species of Birds from Costa Rica. <*Ann. Lyc. Nat. Hist. N. Y.*, xi, 1874, pp. 88–91.

Cyanocitta argentigula, p. 88; *Stenopsis albicauda*, p. 89; *Geotrygon rufiventris*, *Porzana cinereiceps*, p. 90.

1874. Pelzeln, A. v. Ueber eine Sendung von Vögeln aus Ecuador. <*Verh.* (*Abh.*) *k.-k. zool.-bot. Ges. Wien*, xxiv, 1874, pp. 171–174.

Die Sendung von circa 30 Arten enthält in der That Objecte von vielem Interesse, darunter einige Arten welche bisher noch nicht aus Ecuador bekannt waren.

1874. Reed, E. C. Remarks on the Birds of Juan Fernandez and Mas-a-fuera. <*Ibis*, 3d ser., iv, 1874, pp. 81–84.

In the former island, 6 spp. of land-birds; in the latter, 5. Cf. Sclater, *Ibis*, 1871, pp. 178–183, on the same subject.

1874. Sclater, P. L. News of Mr. Salvin [*i. e.*, a letter from O. Salvin, on certain Guatemalan birds]. <*Ibis*, 3d ser., iv, 1874, pp. 99–100.

1874. Sclater, P. L. [Notice of Mr. Jelski's Collections in Western Peru.] <*Ibis*, 3d ser., iv, 1874, p. 100.

1874. Sclater, P. L. On a small Collection of Birds from Barbadoes, West Indies. <*P. Z. S.*, xlii, 1874, pp. 174, 175.

Nine species.

1874. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. Whitely. Part VIII. <*P. Z. S.*, 1874, pp. 677–680, pl. lxxxiv.

List of 32 spp., and notes on 9 of them. Synopsis of 6 spp. of *Northoprocta*; *N. taczanowskii*, p. 679, pl. lxxxiv, sp. n.

1874. TACZANOWSKI, L. Description des Oiseaux nouveaux du Pérou central. < *P. Z. S.*, xlii, 1874, pp. 129–140, pll. xix, xx, xxi.

**Cistothorus graminicola*, **Thryothorus cantator*, p. 130; **Dacnis xanthophthalma*, *Dacnidea* (g. n.) *leucogastra* (pl. xix, f. 2), p. 131; **Microspingus* (n. g.) *trifasciatus* (pl. xix, f. 1), **Chlorospingus cinereocephalus*, **Spermophila simplex*, p. 132; **Sycalis raimondii*, **Ochthœca thoracica*, p. 133; **Muscisaxicola rufipennis*, **Leptopogon auritus*, p. 134; *Pogonotriccus ophthalmicus*, *Doliornis* (g. n.) *sclateri* (pl. xx), **Corythopis humivagans*, **Herpsilochmus motacilloides*, p. 136; *Myrmotherula atrogularis*, **Thripadectes scrutator*, p. 137; **Scytalopus sylvestris*, *Thalurania jelskii*, **Helianthea dichroura*, p. 138; *Metallura hedvigæ* (pl. xxi, f. 2), **Eriocnemis sapphiropygia*, p. 139; *Lampraster* (n. g.) *branickii*, pl. xxi, f. 1, p. 140, spp. nn.; those marked with an asterisk being from C. Jelski's MS. Cf. *J. f. O.*, 1873, pp. 64–68, 315–320; 1874, pp. 97–100.

1874. TACZANOWSKI, L. Liste des Oiseaux recueillis par M. Constantin Jelski dans la partie centrale du Pérou Occidental. <*P. Z. S.*, Nov. 3, 1874, pp. 501–565, pll. lxiv, lxv.

Most of the new Peruvian birds discovered by Jelski had been described by Cabanis in *J. f. O.*, 1873, and by Taczanowski in *P. Z. S.*, 1874, when the latter drew up the present important article, giving a complete list of the 490 species secured by the intrepid and indefatigable traveller during the three years he passed in exploring the narrow but interesting region comprised between Lima, Huanta, Monterico, Farma, and Junin, which is situated in the Cordilleras, and therefore presents a marvellously rich avifauna, composed of species living from torrid regions to the line of perpetual snow. The following 19 species are here described as new:—*Anthus brevirostris*, *A. calcaratus*, p. 507; *Conirostrum cyaneum*, p. 512; *Buarremon mystacalis*, p. 515; *B. tricolor*, p. 516; *Chlorospingus chrysogaster*, p. 517; *Spermophila obscura*, p. 519; *Pipilo mystacalis*, p. 521; *Geositta saxicolina*, p. 524; *Upucerthia serrana*, p. 525; *Anabazenops cabanisi*, p. 528: *Ochthodiæta signatus*, p. 532; *Rhyncocyclus peruvianus*, p. 537; *Myiobius superciliosus*, p. 538; *Empidonax andinus*, p. 539; *Leucippus pallidus*, p. 542; *Hypoxanthus brevirostris*, p. 546; *Gallinago andina*, p. 561; *Nothoprocta branickii*, p. 563.—Pl. xliv, *Turdus nigriceps*. Pl. xlv, *Buarremon tricolor*.—The text is chiefly descriptive, biographical, and critical.

1875. DUBUS, A. Descriptions de Quelques Oiseaux Nouveaux. < *Bull. Acad. Roy. Belg.*, 2d ser., xl, No. 12, Dec., 1875, pp. 13–17.

Cyanocitta yucatanica, p. 13, Yucatan; *Icterus virescens*, p. 15, Mexico; *I. xanthornus* var. *a. dubusii*, p. 16, Panama; *I. xanthornus* var. *marginalis*, p. 17, Panama.—Not seen.

1875. LAWRENCE, G. N. Descriptions of five new Species of American Birds. <*Ibis*, 3d ser., v, July, 1875, pp. 383–387, pl. ix.

Chlorospingus? speculiferus, p. 383, pl. ix, f. 1; *C. nigrifrons*, p. 384; *Serpophaga leucura*, p. 384, pl. ix, f. 2; *Orchilus atricapillus*, p. 385; *Empidonax nanus*, p. 386.

1875. PELZELN, A. v. On some Birds from Spanish Guiana collected by Herr Münzberg. <*Ibis*, 3d ser., v, July, 1875, pp. 329–332.

24 spp.; among them *Machetes pugnax!* *Heleodytes bicolor*, p. 330, sp. n.

1875. PHILIPPI, R. A. Escursion al cajon de los Cipreses en la hacienda de Cauquenes (Rancagua). < *Anales Univ. Chile*, tomo xlvii, 1ª secc., 1875, pp. 651–670.

La Fauna del Valle, p. 670.—*Conurus cyanolysios*, *Attagis gayana*.

1875. SALVIN, O. Additional [cf. Ibis, 1871, p. 178; 1874, p. 81] Notes on the Birds of the Islands of Masafuera and Juan Fernandez. < *Ibis*, 3d ser., v, July, 1875, pp. 370–377.

Buteo exsul, p. 371; *Œstrelata externa*, p. 373, spp. nn. Letter from E. Oustalet on type of *Puffinus sericeus* Less. List of 17 known species of the two islands.

1875. SCLATER, P. L., *and* SALVIN, O. On Venezuelan Birds collected by Mr. A. Goering. Part V. <*P. Z. S.*, Mar. 16, 1875, pp. 234–238, pl. xxxv.

List of 42 + 33 spp., with notes on 7 of them. *Buarremon castaneifrons*, p. 235, pl. xxxv, f. 1; *Chlorospingus chrysophrys*, p. 235; *Chloronerpes xanthochlorus*, p. 238, spp. nn. Pl. xxxv, f. 2, *Buarremon taczanowskii*.

1875. SCLATER, P. L., *and* SALVIN, O. Description of two new Species of Birds from the State of Antioquia, U. S. C. <*P. Z. S.*, Nov. 2, 1875, pp. 541–542.

Catharus phæopleurus, p. 541; *Automolus holostictis*, p. 542.

1876. ALLEN, J. A. Exploration of Lake Titicaca, by Alexander Agassiz and S. W. Garman. III. List of Mammals and Birds. By J. A. Allen, with Field-Notes by Mr. Garman. < *Bull. Mus. Comp. Zoöl.*, iii, No. 15, July, 1876, pp. 349–359.

An annotated list of 69 spp. of birds, pp. 353–359. *Falcinellus ridgwayi*, *Gallinula garmani*, spp. nn. Cf. *Ibis*, 4th ser., i, 1877, pp. 119, 120.

1876. A[llen], J. A. Description of new species of American Birds. < *Bull. Nutt. Ornith. Club,* i, No. 2, July, 1876, p. 47.

Notice of two recent papers by G. N. Lawrence in *Ann. Lyc. N. Y.* and *Ibis.*

1876. Brown, C. B. Canoe and Camp Life in British Guiana. By C. Barrington Brown, Assoc. R. S. M., late Government Surveyor in British Guiana. London: Stanford. 1876. 1 vol. 8vo.

Not seen: cited from *Ibis,* 1877, p. 239, where favorably noticed. It is said to be replete with natural history notes, many of which relate to birds, and among which are some of novelty or other special interest.

1876. Durnford, H. Ornithological Notes from the Neighbourhood of Buenos Ayres. <*Ibis,* 3d ser., vi, April, 1876, pp. 157–166.

1876. [Hotchkiss, Truman.] South American Game Birds. < *Scientific American* of Sept. 3, 1876.

Reprinted in *Forest and Stream,* vii, Oct. 12, 1876, p. 148.

1876. Napp, R. Argentine Republic. Buenos Ayres. 1876. 8vo. pp. 560, 5 maps.

Not seen.

1876. Orton, J. The Andes and the Amazon; or across the Continent of South America. By James Orton, A. M. Third edition, revised and enlarged, containing notes of a second journey across the continent from Para to Lima and Lake Titicaca. New York: 1876. 8vo.

Not seen; nor do I know the date of the original or 2d edition. Cf. *Ibis,* 1877, p. 373.

1876. Pelzeln, A. v. Ueber eine weitere Sendung von Vögeln aus Ecuador. < *Verh. (Abh.) d. k.-k. zool.-bot. Gesellsch. zu Wien,* Dec. 6, 1876, pp. 765–772.

Ein ausführliches Verzeichniss der Arten, theilweise mit Anmerkungen versehen. Cf. *Ibis,* 1877, p. 383.

1876. Salvin, O. On some new Species of Birds from Western Ecuador. <*Ibis,* 3d ser., vi, 1876, pp. 493–496, pl. xiv.

Euscarthmus ocularis, p. 493; *Formicivora speciosa,* p. 494; *Capito squamatus,* p. 494, pl. xiv; *Pionopsitta pyrrhops,* p. 495; *Leucopternis occidentalis,* p. 496.

1876. Salvin, O. On the Avifauna of the Galapagos Archipelago. < *Trans. Zool. Soc. Lond.,* vol. ix, pt. ix, May, 1876, art. x, pp. 447–510, pll. lxxxiv–lxxxix, many woodcc.

This important paper contains:—Introductory remarks, physical and historical, including Dr. Habel's account of his visit (cf. *P. Z. S.,* 1870, pp. 322–327), p. 447. Short account of the literature of the subject, p. 461. List of the birds, with remarks on their relationships with those of other countries, *a,* as to species, *b,* as to genera, *c,* as to families, p. 463. Summary of the birds of each island, p. 466. On the variation of the species in certain genera (*Geospiza, Cactornis, Camarhynchus*), and consequent difficulty of defining them, p. 469. Account of each species, with synonymy, description, distribution, biography, and general remarks, p. 471. Conclusions, p. 509.

Families 20; genera 39, of which 27 are wide-ranging; species 57, of which 38, or more than 66 per cent., are peculiar to the islands; 21 water-birds, 36 land-birds. Pl. lxxxiv, map of the Archipelago; lxxxv, *Camarhynchus variegatus;* lxxxvi, *C. habeli;* lxxxvii, *Larus fuliginosus;* lxxxviii, ff. 1, 2, *Œstrelata phæopygia,* sp. n., p. 507; f. 2, *Procellaria tethys;* lxxxix, *Spheniscus mendiculus.* Also, heads, etc., of the species of *Geospiza, Cactornis,* and *Camarhynchus* figured in the numerous woodcuts. Dr. Habel's field-notes *passim;* his new species were previously described by S. & S., *P. Z. S.,* 1870, pp. 322–327, *q. v.*

Original date of *Creagrus* Bp., 1853; also pub. in 1854 in separates of a paper in *Rev. Zool.,* Jan., 1855.

1876. Sclater, P. L. On some additional Species of Birds from St. Lucia, West Indies. <*P. Z. S.,* Jan. 4, 1876, pp. 13, 14, pl. ii.

Cf. *P. Z. S.,* 1871, p. 263, and 1872, p. 647.—List of 8 spp. *Thryothorus mesoleucus, Leucopeza* (g. n.) *semperi* (pl. ii), p. 14, spp. nn.

1876. Sclater, P. L., *and* Salvin, O. On Peruvian Birds collected by Mr. Whitely.—Part IX. < *P. Z. S.,* Jan. 4, 1876, pp. 15–19, pl. iii.

List of 65 spp., with remarks on 9 of them. *Thamnophilus melanchrous,* p. 18, pl. iii; *Columba albipennis,* p. 18, spp. nn.

1876. SCLATER, P. L., *and* SALVIN, O. Descriptions of new Birds obtained by Mr. C. Buckley in Bolivia. <*P. Z. S.*, Feb. 1, 1876, pp. 253, 254.

Diglossa glauca, p. 253; *Buarremon melanops*, p. 253; *Leptopogon tristis*, p. 254; *Hypoxanthus atriceps*, p. 254.

1876. SCLATER, P. L., *and* SALVIN, O. On new Species of Bolivian Birds. <*P. Z. S.*, Apr. 4, 1876, pp. 352–358, pll. xxx–xxxiii, woodcc.

Catharus mentalis, *Basileuterus euophrys*, p. 352; *Malacothraupis* (g. n.) *dentata* (pl. xxxi), fig. on p. 353, *Calliste punctulata*, p. 353; *C. fulvicervix* (pl. xxx, f. 1), *C. argyrofenges* (pl. xxx, f. 2), *Chlorospingus calophrys*, *Cyanocorax nigriceps*, *Ochthodiœta fuscorufus*, p. 354; *Ochthœca pulchella*, *Anœretes flavirostris*, *Lathria uropygialis* (pl. xxxii, fig. on p. 356), p. 355; *Grallaria erythrotis*, *Thamnophilus subfasciatus* (pl. xxxiii), *Asturina saturata*, p. 357.

1877. ALLEN, J. A. List of Birds collected by Mr. Charles Linden, near Santarem, Brazil. <*Bull. Essex Inst.*, viii, No. 8, 1876, pp. 78–83. (Pub. Feb., 1877.)

Annotated list of 128 spp.; *Coccygus lindeni*, sp. n.

1877. DURNFORD, H. Notes on some Birds observed in the Chuput Valley, Patagonia, and in the neighbouring District. <*Ibis*, 4th ser., i, 1877, pp. 27–46.

Extended field-notes on about 62 spp.

1877. DURNFORD, H. Notes on the Birds of the Province of Buenos Ayres. <*Ibis*, 4th ser., i, 1877, pp. 166–203, pl. iii.

Excellent field-notes on 144 spp., with some little editorial criticism. *Porzana spiloptera* "Burm. MS.", p. 194, pl. iii, sp. n.

1877. EDITORS. Allen's 'Birds of Lake Titicaca.' <*Ibis*, 4th ser., i, 1877, pp. 119, 120.

Review of that paper.

1877. EDITORS. Brown's Travels in British Guiana. <*Ibis*, 4th ser., i, 1877, p. 237.

Notice of the work of that name.

1877. EDITORS. Pelzeln on Birds from Ecuador. <*Ibis*, 4th ser., i, 1877, p. 383.

A notice of the paper in *Verh. (Abh.) zool.-bot. Gesch. zu Wien*, 1876, pp. 765–772.

1877. EDITORS. Roraima and its mysteries. <*Ibis*, 4th ser., i, 1877, pp. 399, 400.

À propos of C. B. Brown's work on British Guiana, 1876, *q. v.* The article is chiefly an extract from the London *Spectator*, date unknown to me.

1877. ERNST, A. Estudios | sobre la | Flora y Fauna | de Venezuela | por | A. Ernst. | — | Caracas | Imprenta federal | . . . | 1877. 4°. 2 p. ll., pp. 211–330.

Catálogo sistemático de las especies de Aves que han sido observadas hasta ahora en los Estados Unidos de Venezuela, pp. 293–316. 315 géneros y 556 especies.—Publicado en el *Primer Annuario Estadístico*, Caracas, 1877.

1877. LAWRENCE, G. N. Descriptions of New Species of Birds from the Island of Dominica. <*Ann. N. Y. Acad. Sci.*, i, Oct., 1877, pp. 46–49.

Thryothorus rufescens, *Dendrœca plumbea*, *Myiarchus oberi*, spp. nn. Cf. *Bull. Nutt. Ornith. Club*, iv, Jan., 1879, pp. 48, 49.

1877. LAWRENCE, G. N. A Provisional List of the Birds Procured and Noticed by Mr. Fred. A. Ober in the Island of Dominica. <*Forest and Stream*, ix, Dec. 6, 1877, p. 345.

Provisional list of 56 spp., anticipating the final paper in *Proc. U. S. Nat. Mus.*, 1878, *q. v.*

1877. REED, E. C. Apuntes de la Zoologia de la Hacienda de Cauquenes, Provincia de Colchagua [Chile], por Edwyn C. Reed. Santiago de Chile. 1877. 8vo.

Not seen. Cf. *Ibis*, Oct., 1878, pp. 485, 486.

1877. SCLATER, P. L., *and* SALVIN, O. Descriptions of eight new Species of South-American Birds. <*P. Z. S.*, Jan. 2, 1877, pp. 18–22, pl. i.

Euphonia finschi (Demerara), *Pheucticas crissalis* (Ecuador), *Ochthoeca leucometopa* (Western Peru), p. 19; *O. arenacea* (Columbia), *Chloronerpes dignus* (Columbia) (pl. i), p. 20; *Celeus subflavus* (Bahia), *Chamæpelia buckleyi* (Santa Rita, Rep. Æquat.), p. 21; *Crax erythrognatha*, p. 22.

1877. SCLATER, P. L., *and* SALVIN, O. Descriptions of six new Species of South-American Birds. <*P. Z. S.*, June 5, 1877, pp. 521–523, pl. lii.

Basileuterus castaneiceps, *Euphonia insignis* (pl. lii, f. 1), *Chlorospingus phæocephalus* (pl. lii, f. 2), p. 521; *Todirostrum rufigene*, *Lathria cryptolopha*, *Fuligula nationi*, p. 522, from collections made in Peru and Ecuador.

1877. SHARPE, R. B. Account of the Zoological Collection made during the visit of H. M. S. 'Petrel' to the Galapagos Islands. Communicated by Dr. Albert Günther, ... <*P. Z. S.*, Feb. 6, 1877, pp. 64–93.

I. BIRDS. By R. Bowdler Sharpe, pp. 65, 66, 4 spp.; *Mimus parvulus*, *Dendrœca aureola*, *Geospiza fuliginosa*, *Pyrocephalus nanus*.

1877. TACZANOWSKI, L. Liste des Oiseaux recueillis au nord du Pérou occidental par MM. Jelski et Stolzmann. <*P. Z. S.*, 1877, pp. 319 – —, pl. xxxvi.

Not seen. (Part ii of this volume missing from my set.)

1877. TACZANOWSKI, L. Supplément à la Liste des Oiseaux recueillis au nord du Pérou occidental par MM. Jelski et Stolzmann. <*P. Z. S.*, Nov. 6, 1877, pp. 744–754.

Un séjour prolongé aux environs de Tumbez ayant procuré aux voyageurs plusieurs espèces qui n'étaient pas fournies dans les envois précédents (voir tome cit. pp. 319 – —), ces oiseaux sont ici indiqués, au nombre de 31; ce qui joint à 72 esp. de la liste précédente, fait en tout 103 espèces des environs de Tumbez qui n'étaient pas trouvées dans le Pérou central par M. Jelski.—*Penelope albipennis*, p. 746; *Rallus cypereti* Stolzm. MS., p. 747, spp. nn.

1878. BISHOP, N. H. Notes on the Illustrations in Don Juan Lembeye's "Birds of the Island of Cuba." <*Forest and Stream*, x, July 25, 1878, p. 482.

Very unfavorable to the author here criticised.

1878. BOUCARD, A. On Birds collected in Costa Rica. <*P. Z. S.*, Jan. 15, 1878, pp. 37–71, pl. iv.

This interesting paper gives notes, both field and critical, upon 258 spp. collected by the author himself during the five months spent in the country, with headquarters at San José, the capital. This is just half the total recorded number of Costa Rican birds, 520. Many varieties were secured, though only one novelty, as the ground had already been well worked over by several explorers, as set forth in the papers of Lawrence, Salvin, Cabanis, and others.—*Zonotrichia vulcani*, p. 57, pl. iv, sp. n.

1878. CABANIS, J. Ueber eine Sammlung von Vögeln der Argentinischen Republik. <*J. f. O.*, Apr., 1878, pp. 194–199.

Da dieser Jahrgang gerade gebunden wurde, war es mir nicht möglich denselben einzusehen.

1878. DURNFORD, H. Notes on the Birds of the Province of Buenos Ayres. <*Ibis*, 4th ser., ii, 1878, pp. 58–69.

Not seen. (This volume of the *Ibis* is at the binder's.)

1878. DURNFORD, H. Notes on the Birds of Central Patagonia. <*Ibis*, 4th ser., ii, No. 8, Oct., 1878, pp. 389–406.

Not seen. (This volume of the *Ibis* is at the binder's.)

1878. [GRINNELL, G. B.] New Birds from the West Indies. <*Forest and Stream*, x, July 25, 1878, p. 483.

Comments upon recent collections by Fred. A. Ober.

1878. [GRINNELL, G. B.] Four New Birds from the West Indies. <*Forest and Stream*, xi, Aug. 8, 1878, p. 2.

Notice of F. A. Ober's collections.

1878. [GRINNELL, G. B.] Birds of Dominica and St. Vincent. <*Forest and Stream*, xi, Nov. 21, 1878, p. 320.

Notice of George N. Lawrence's catalogues of F. Ober's ornithological collections in the West Indies.

1878. [GRINNELL, G. B.] Frederick A. Ober ("Fred Beverly.") <*Forest and Stream*, xi, Nov. 21, 1878, p. 327.

Portrait and brief biographical notice.

1878. Gundlach, J. Neue Beiträge zur Ornithologie der Insel Portorico. < *J. f. O.*, Apr., 1878, pp. 157-194.

Dieses Buch befindet sich beim Buchbinder und ist mir deshalb nicht zugänglich.

1878. Lawrence, G. N. Descriptions of Seven New Species of Birds from the Island of St. Vincent, West Indies. < *Ann. N. Y. Acad. Sci.*, i, No. 5, June, 1878, pp. 147-153.

Turdus nigrirostris, Myiadestes sibilans, Thryothorus musicus, Certhiola atrata, C. saccharina, Leucopeza bishopi, Calliste versicolor. Cf. *Ibis*, Oct., 1878, p. 468; *Bull. Nutt. Ornith. Club*, iv, 1879, pp. 48, 49.

1878. Lawrence, G. N. Descriptions of Supposed New Species of Birds from the Islands of Grenada and Dominica, West Indies. < *Ann. N. Y. Acad. Sci.*, i, July, 1878, pp. 160-163.

Turdus caribbœus (Grenada), *Thryothorus grenadensis* (Grenada), *Blacicus brunneicapillus* (Dominica), *Quiscalus luminosus* (Grenada). Cf. *Bull. Nutt. Ornith. Club*, iv, Jan., 1879, pp. 48, 49.

1878. Lawrence, G. N. Catalogue of the Birds of Dominica from Collections made for the Smithsonian Institution by Frederick A. Ober, together with his Notes and Observations. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. July, 1878), pp. 48-69.

Fully annotated list of 59 spp.; collector's field-notes and sketch of the locality; author's critical commentary. *Vireosylvia calidris* var. *dominicana*, p. 55; *Strix flammea* var. *nigrescens*, p. 64, varr. nn. Cf. *Bull. Nutt. Ornith. Club*, iv, Jan., 1879, pp. 48, 49.

1878. Lawrence, G. N. Catalogue of the Birds of St. Vincent, from Collections made by Mr. Fred. A. Ober, under the Direction of the Smithsonian Institution, with his Notes thereon. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. Oct., 1878), pp. 185-198.

Treats of 59 spp., 3 undetermined, with collector's field-notes and sketch of the island; author's critical commentary on several of the species. Seven new species of this collection were described just previously, in *Ann. N. Y. Acad. Sci.*, 1878, *q. v.* Cf. *Bull. Nutt. Ornith. Club*, iv, 1879 pp. 48, 49.

1878. Lawrence, G. N. Catalogue of the Birds of Antigua and Barbuda, from Collections made for the Smithsonian Institution, by Mr. Fred A. Ober, with his Observations. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. Dec., 1878), pp. 232-242.

From Antigua, 42 spp.; from Barbuda, 39 spp.; both lists fully annotated by Mr. Ober, with his field-notes. *Speotyto amaura*, p. 234, sp. n.

1878. Pelzeln, A. v. Weitere Sendungen von Vögeln aus Ecuador. < *Verh.* (*Abh.*) *d. k.-k. zool.-bot. Gesellsch. zu Wien*, —, 1878, pp. 15-20.

Nicht selbst gesehen: Titel aus Ridgway's MS. citirt. Unter den beschriebenen interessanten Arten befinden sich *Urochroa bougueri, Urosticte ruficrissa, Bourcieria insectivora* und *Cyanocitta pulchra. Chlorochrysa sodiroi* sp. n. = *C. phœnicotis* ♀; cf. *Ibis*, 1878, pp. 478, 479.

1878. Sclater, P. L., *and* Salvin, O. On the Collection of Birds made by Prof. Steere in South America. < *P. Z. S.*, Feb. 5, 1878, pp. 135-142, pll. (Aves) xi-xiii, woodcc.

Prof. Steere collected about 911 bird-skins, from Pará to Callao, belonging to about 362 spp., 22 of which furnish the occasion for remark in this paper. Among them is *Xema sabinii!*— *Myiarchus semirufus* (pl. xi), p. 138; *Furnarius pileatus*, p. 139; *Capito steerii* (pl. xii), p. 140; *Crypturus transfasciatus* (pl. xiii), p. 141, spp. nn.

1878. Sclater, P. L., *and* Salvin, O. Reports on the Collections of Birds made during the voyage of H. M. S. 'Challenger.'—No. IX. On the Birds of Antarctic America. < *P. Z. S.*, Apr. 16, 1878, pp. 431-438.

Report on 41 spp. collected on the voyage from Juan Fernandez, along the coast of Patagonia, to the Falklands. It is little more than a list of the specimens, with collector's notes, though some technic occurs.

1878. Sclater, P. L., *and* Salvin, O. Descriptions of three new Species of Birds from Ecuador. < *P. Z. S.*, Apr. 16, 1878, pp. 438-440, pll. (Aves) xxvii, xxviii.

Buarremon leucopis, Neomorphus radiolosus, pl. xxvii, *Aramides calopterus*, pl. xxviii, p. 439.

1878. Spence, J. M. The Land of Bolivar, or War, Peace, and Adventure in the Republic of Venezuela. With maps and illustrations. . . . London: Sampson Low & Co. 1878. 2 vols. 8vo.

Not seen: contains a catalogue of birds, reprinted from *P. Z. S.*, 1873, pp. 511, 512.

1879. A[llen], J. A. Lawrence and Ober on the Birds of Dominica and St. Vincent. < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, pp. 48, 49.

Notices of five of G. N. Lawrence's recent papers on F. A. Ober's collections in the Lesser Antilles, in *Ann. N. Y. Acad.* and *Proc. Nat. Mus.*

1879. Lawrence, G. N. Catalogue of the Birds of Grenada, from a Collection made by Mr. Fred. A. Ober for the Smithsonian Institution, including others seen by him, but not obtained. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. Feb., 1879), pp. 265–278.

Grenada, one of the Lesser Antillian Islands, about 12° N., 18½ miles long by 7½ broad. Mr. Ober's general remarks on the island, and his field-notes in the body of the article. Treats of 54 spp., represented in the collection by 66 specimens. *Vireosylvia calidris* var. *dominicana*, p. 268; *Strix flammea* var. *nigrescens*, p. 273, varr. nn.?

1879. Lawrence, G. N. Catalogue of the Birds collected in Martinique by Mr. Fred. A. Ober for the Smithsonian Institution. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. Mar. 10, 1879), pp. 349–360.

Sketch of Martinique by Mr. Ober, and his copious field-notes throughout the list of 40 spp. Important note on *Dendrœca rufigula* Baird, p. 353, and on *Quiscalus inflexirostris* Swains., p. 356. *Myiarchus sclateri*, p. 357, sp. n.

1879. Lawrence, G. N. Catalogue of a Collection of Birds obtained in Guadeloupe for the Smithsonian Institution, by Mr. Fred. A. Ober. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. Apr. 22, 1879), pp. 449–462.

Of the same characters as previous papers of this series. Mr. Ober collected in Guadeloupe in August and September, 1878, sending in 132 specimens, and noting 45 spp.

1879. Lawrence, G. N. A General Catalogue of the Birds noted from the Islands of the Lesser Antilles visited by Mr. Fred. A. Ober; with a Table showing their Distribution and those found in the United States. < *Proc. U. S. Nat. Mus.*, vol. i, 1878, (pub. 1879), pp. 486–488.

A *résumé* of the preceding catalogues in tabular form. All these papers of Mr. Lawrence's are also published separately, same pagination, with cover and new title-page.

ADDENDA.

I continue with a few titles acquired during the impression of the preceding pages.

1625. De Laet, J. Nieuwe Wereldt | ofte | Beschrijvinghe | van | West-Indien, | wt veelerhande Schriften ende Aen-teekeningen | van verscheyden Natien by eenversamelt | Door Ioannes de Laet, | Ende met Noodighe Kaerten en Tafels voorsien. | Tot Leyden, | In de Druckerye van Isaack Elzevier. | Anno 1625. | Met Privilege der Ho. Mo. Heeren Staten Generael, voor 12 Jaren. | Folio. pp. (2), xxii, 526, maps.

Not seen: title from Sabin's *Bibl.* See ed. of 1630.

1630. De Laet, J. Beschrijvinghe | van | West-Indien | door Ioannes de Laet. | Tweede Druck: | In ontallijcke plaetsen ver- | betert, vermeerdert, met eenige nieuwe Caerten, beelden van | verscheyden dieren ende | planten verciert. | Tot Leyden, bij de Elzeviers. A°. 1630. | Met Priuilegie. 1 vol. Folio. 14 p. ll., incl. half-title, eng. title, dedication, privilege, introduction, contents, list of (14) maps, and errata, pp. 1–622, 9 ll. (index), maps and other illustrations.

Orig. ed. 1625. This is the only edition of the famous work I have seen; I cite several others from Sabin's *Bibl.*

1633. De Laet, J. Novvs Orbis | seu | Descriptionis | Indiæ Occidentalis—Libri XVIII. | Authore | Ioanne de Laet Antverp. | Novis Tabulis Geographicis et variis | Animantium, Plantarum Fructuumque | Iconibus illustrati. | Cvm Privilegio. | Lvgd. Batav. apud Elsevirios. A°. 1633. 1 vol. Folio. 16 p. ll. incl. half-title, eng. title, and list of (14) maps, pp. 1–690, 9 ll. (index).

1640. De Laet, J. L'Histoire | dv | Nouveau Monde | ou | description | des Indes Occidentales, | Contenant dix-huict Liures, | Par le Sieur Iean de Laet, d'Anuers; | Enrichi de nouuelles Tables Geographiques & Figures des | Animaux, Plantes & Fruicts. | [Dessin.] | A Leyde, | Chez Bonauenture & Abraham Elseuiers, Imprimeurs | ordinaires de l'Vniuersité. | — | cIↄ Iↄc xl. 1 vol. Folio. 14 p. ll., pp. 1–632, 6 ll., 14 maps.

"This French translation of Laet contains many materials not found in the original Dutch, . . . This work is full of the most excellent and curious details of the natural history, . . ."

1682. Nieuhof, J. Johan Nieuhofs | Gedenkweerdige | Brasiliaense | Zee- en Lant- | Reize. | Behelzende | Al het geen op dezelve is voorgevallen. | Beneffens | Een bondige beschrijving van gantsch | Neerlants Brasil, | Zoo van lantschappen, steden, dieren, gewassen, als | draghten, zeden en godsdienst der inwoonders: | En inzonderheit | Een wijtloopig verhael der merkwaardigste voorvallen | en geschiedenissen, die zich, geduurende zijn negenjarigh | verblijf in Brasil, in d'oorlogen en opstant der Portugesen | tegen d' onzen, zich sedert het jaer 1640. tot 1649. | hebben toegedragen. | Doorgaens verciert met verscheide afbeeldingen, na 't leven aldaer getekent. | [Afbeeld.] | t' Amsterdam, | — | Voor de Weduwe van Jacob van Meurs, op de Keizers-gracht. 1682. 1 vol. Folio. Eng. title, illum. title, dedication, arms, privilege, introduction, each one leaf; pp. 1–308, 2 ll. (directions to binder, and index); 44 engravings.

See what is said *anteà*, p. 241. In addition to this, there is on p. 281 a heading "Indiaense en Javaense vogels en viervoetige dieren"; under which descriptions of various East Indian and particularly Javan birds run to p. 288, including two engravings on which the Dodo and various other birds are figured.

The above is the full printed title. The work is scarcely citable in the present connection, being of a more general character.

1724. [Labat, *Père* J. B.] Nouveau | Voyage | [du Père Jean Baptiste Labat] | aux Isles | de l'Amerique. | Contenant | L'Histoire Naturelle de ces Pays, | l'Origine, les Mœurs, la Religion & le Gouvernement des | Habitans anciens & modernes: | Les Guerres & les Evenemens singuliers qui y sont arrivez pendant | le long séjour que l'Auteur y a fait: | le Commerce et les Manufactures | qui y sont établies, & les moyens de les augmenter. | Ouvrage enrichi d'un grand nombre de Cartes, Plans, & Figures en Taille-douce. | Tome premier [second]. | [Vignette.] | A la Haye, | Chez P. Husson. T. Johnson. J. Van Duren. R. Alberts. P. Gosse & C. Le Vier. | M. DCC. xxiv. 2 vols. 4to. Vol. I, 3 p. ll., pp. j–viij, 1–360, 2 ll., 47 maps and plates. Vol. II, 4 p. ll., pp. 1–520, 9 ll., many maps and plates.

There are many editions. Sabin's *Bibl.* gives the following, besides the above:—Paris, 6 vols., 12mo, 1722.—La Haye, 6 vols., 12mo, 1724.—Paris, 8 vols., 12mo, 1742; augmented.—Paris, 8vo, 1831; abridged.—Dutch, Amsterdam, 4 vols., 4to, 1725.—Latin, Nürnberg, 7 vols., 12mo, 1782–88.

The celebrated work is very full on the Natural History of the West Indies, and ornithology comes in for its share of treatment; but the copious details are so scattered through the volumes that formal citation of the bird-matter becomes inconvenient.

1745. Warren, G. Impartial Description of Surinam, &c.

The date of the original is said to be 1667. The only shape in which I have handled it is as a part of Vol. II of Osborne's "A Collection of Voyages and Travels", etc., folio, London, 1745, where it is given with a half-title-page as follows:—An impartial | Description | of | Surinam | upon the | Continent of Guinea | in | America. | With a | History of several strange

1745. WARREN, G.—Continued.

Beasts, Birds, Fishes, Serpents, In- | sects, and Customs of that Colony, &c. | Worthy the Perusal of all, from the Experience of | George Warren, Gent. | pp. 919–931. Chap. IV. Of the Birds; p. 924, a column of remarks, of no consequence.

1765. FERMIN, P. Histoire | Naturelle | de la | Hollande Equinoxiale: | ou | Description | des Animaux, Plantes, Fruits, et autres | Curiosite's Naturelles, qui se trouvent | dans la colonie de | Surinam; | avec Leurs Noms différents, tant François, que Latins, | Hollandois, Indiens & Négre-Anglois. | Par | Philippe Fermin, | Docteur en Medicine. | [Vignette.] A Amsterdam, | Chez M. Magérus, Libraire. MDCCLXV. 1 vol. 8vo. pp. i–xii, 1–240, 1 l.

Seconde Partie, Des Oiseaux, Poissons, et Testacées, pp. 57–108, where a few birds, fishes, and mollusks are given in alphabetical order, mixed together, with slight descriptions, or definitions of the names, of each.

1782. [PALLAS, P. S.] Beschreibung zweyer südamerikanischer merkwürdiger Vögel. < *Neue Nordische Beyträge*, iii, 1782, pp. 1–7, pl. i.

1. Der kleine schwarze Kukuk aus Surinam (*Cuculus tenebrosus*), p. 2, pl. i, f. 1. 2. Der allerkleinste Specht oder Wendehals, aus Südamerika (*Picus minutissimus*), p. 5, pl. i, f. 2.

1793. WEST, H. Bidrag | til | beskrivelse | over St^{e} Croix | med en | kort Udsigt | over | St. Thomas, St. Jean, Tortola, | Spanishtown og Crabeneiland. | Af | H. West, | Rector ved det vestindiske Skole-Institut. | — | Kiöbenhavn, 1793. | Trykt hos Frederik Wilhelm Thiele. 1 vol. 16mo. 3 p. ll., 1–364, folded sheet opp. p. 204.

This is the *ed. princ.*; there is another, German, Kopenhagen, 1794. The only bird-matter consists of a list of 2 spp., on p. 317—*Ardea coerulea* and *Fulica chloropus* (= *Gallinula galeata*).

1810. LEDRU, A.-P. Voyage | aux Iles | de Ténériffe, | La Trinité, Saint-Thomas, | Sainte-Croix et Porto-Ricco, | exécuté par ordre du Gouvernement Français, | Depuis le 30 Septembre 1796 jusqu'au 7 Juin 1798, sous la | Direction du Capitaine Baudin, pour faire des Recherches | et des Collections relatives à l'Histoire Naturelle; | contenant | Des Observations sur le Climat, le Sol, la Population, | l'Agriculture, les Productions de ces Iles, le Caractère, les | Mœurs et le Commerce de leurs Habitants. | Par André-Pierre Ledru, | [etc., trois lignes.] | Ouvrage accompagné de notes et d'additions, | par M. Sonnini. | Avec une très-belle Carte gravée par J. B. Tardieu, d'après Lopez. | Tome premier [second]. | A Paris, | Chez Arthur Bertrand, Libraire, rue Haute feuille, n^{o} 23. | — | 1810. 2 vols. 16mo. Vol. I, 2 p. ll., pp. i–xlviij, 1–315, 1 l. Vol. II, 2 p. ll., pp. 1–324, 1 l., map.

Vol. I, Chap. XIII, Essai sur l'histoire naturelle de l'île de Ténériffe, pp. 176 et seq. Oiseaux, pp. 177–185, par l'auteur. Notes sur les animaux dont il est question dans le chapître précédent, par Sonnini, pp. 219–231. Note sur le Pélecan, par Sonnini, pp. 245, 246. Chap. XVI, Notice sur l'île de la Trinité, par l'auteur, pp. 247 et seq. Oiseaux, pp. 258–261. Notes sur l'histoire, et particulièrement sur l'histoire naturelle de l'île de la Trinité, par Sonnini, pp. 267 et seq. Oiseaux, pp. 296–307.—Vol. II, Chap. XIX, Essai sur l'histoire naturelle des îles danoises, pp. 36 et seq. Oiseaux, pp. 38, 39. Chap. XXVIII, Histoire naturelle de Porto-Ricco, pp. 194 et seq. Oiseaux, pp. 199–209. Addition à l'histoire naturelle de Porto-Ricco, par Sonnini, pp. 255 et seq. Oiseaux, pp. 256–274.

1811. HUMBOLDT, A. v. Recueil d'Observations de Zoologie. 1811.

Not seen; said to contain a few brief notices of the birds of Colombia.

1811–12. LEDRU, A.-P. Reise nach den Inseln Tenériffa, Trinidad, St. Thomas, St. Cruz, und Porto-Rico, . . . Aus dem Französischen, mit Bemerkungen über Colonialwaaren von E. A. W. Zimmermann. Leipzig, 1811–12. 2 vols. 8vo.

Not seen: title from Sabin's *Bibl.*

1823–31. SPIX, J. B. v., *and* MARTIUS, C. F. P. v. Reise | in | Brasilien | auf Befehl Sr. Majestät | Maximilian Joseph I. | Königs von Baiern | in den Jahren 1817 bis 1820 gemacht und beschrieben | von | Dr. Joh. Bapt. von Spix, | [etc., 3 Zeilen,] | und Dr. Carl Friedr. Phil. von Martius, | [etc., 3 Zeilen.] | Erster

1823–31. Spix, J. B. v., *and* Martius, C. F. P. v.—Continued.
[-dritter] Theil. | — | München, 1823 [1828, 1831]. . . . 3 vols. 4to.— Erster Theil, München, 1823, gedruckt bei M. Lindauer, 4 p. ll., pp. i–x, 1–412. Zweiter Theil, bearbeitet und herausgegeben von Dr. C. F. P. von Martius, München, 1828, gedruckt bei I. J. Leutner, pp. i–viii, 413–884, 1 l. Dritter Theil, bearb. u. herausg. von Dr. C. F. P. von Martius, München, 1831, bei dem Verfasser, Leipzig, in Comm. bei Friedr. Fleischer, pp. i–viii, 885–1388, geographischer Anhang, 1 p. l., pp. 1–40, und Karte vom Amazonenstrome.

The copy examined contains no formal presentation of the ornithology, and only one map. There is an English translation of a portion of the work, 1824, *q. v.* The natural history is said to be contained in a special appendix to Theil III, and to be also found separate under the title „Die Pflanzen und Thiere des tropischen America" u. s. w., München, 1831, gr.-4to mit 4 Taf. in-folio.

1824. Spix, J. B. v., *and* Martius, C. F. P. v. Travels | in | Brazil, | in the years | 1817–1820. | Undertaken by command of | His Majesty the King of Bavaria. | By | Dr. Joh. Bapt. von Spix, | and Dr. C. F. Phil. von Martius, | [etc., 3 lines.] | — | Volume the first [second]. | — | London: | printed for | Longman, Hurst, Rees, Orme, Brown, and Green, | Paternoster-row. | 1824. 2 vols. in 1. 8vo. Vol. I, pp. iii–xxii, 1–327, 4 pll. Vol. II, pp. iii–x, 1–298, 5 pll.

This is an English translation of *portions* of Spix and Martius's *Reise*, not of the whole work, which was not completed until 1831. It does not contain the natural history proper of the work, which is in the concluding part of the German work; only giving some little bird-matter incidentally, here and there. (See this Bibliography, *anteà*, p. 250, at date of 1823–31.)

1831. Wagner, J. A. Beiträge | zur | Kenntniss der warmblütigen Wirbelthiere | Amerika's. | Von | Professor Dr. Johann Andreas Wagner. | [n. d., n. p. Kempten, 1831.] 1 vol. 4to. pp. 94, pll. v.

Diese mit Halbtitel versehene Broschüre enthält: Osteographische Beiträge zur Kenntniss einiger südamerikanischen Vögel. I. *Crypturus variegatus*, pp. 56–66, pl. iii, f. 1–6. II. *Dicholophus cristatus*, pp. 66–72, pl. iii, f. 7–11. III. *Psophia crepitans*, pp. 72–77, pl. iv, f. 1–4. IV. *Mycteria americana*, pp. 77–83, pl. iv, f. 5–7.

1831–35. Kittlitz, F. H. v. Über einige Vögel von Chili, beobachtet im März und Anfang April 1827. < *Mém. présentés à l'Acad. Imp. des Sci. de St.-Pétersb. par divers Savans Étrang.*, i, 1831, pp. 173–194, pll. — ?; ii, 1835, pp. 465–472, pll. 1–5. (Auch als Separat-Abdruck erschienen.)

I. 1831.—*Phytotoma silens*, p. 175; *Pteroptochos rubecula*, p. 179; *P. albicollis*, p. 180; *P. megapodius*, p. 182; *Troglodytes paradoxus*, p. 184; *Synnalaxis* [sic] *humicola*, p. 185; *S. aegithaloides*, p. 187; *Opetiorynchos* [sic] *rupestris*, p. 188; *Muscicapa parulus*, p. 190; *M. pyrope*, p. 191; *Fringilla diuca* (Mol.), p. 192; *Crypturus perdicarius*, p. 193. (Title calls for 12 colored plates; no plates found in copy examined.)

II. 1835.—13, *Tamnophilus* [sic] *lividus*, p. 465, pl. 1; 14, *Sturnus aterrimus*, p. 467, pl. 2; 15, *Alauda fissirostris*, p. 468, pl. 3; 16, *Fringilla arvensis*, p. 470, pl. 4; 17, *Anas chalcoptera*, pl. 471, pl. 5 (lettered *chalcontera*).

Obs. This reference is often misquoted as if it were to the regular *Mém. de l'Acad. St.-Pétersb.*

1833. Schreiber, [C. v.] Collectanea ad Faunam Braziliæ.

Not seen. "M. Schreiber of Vienna commenced, in 1833, the 'Collectanea ad Faunam Braziliæ', but only one number of that work was ever published."

1834. Lesson, R. P. Sur quelques Oiseaux du Chili. < *L'Institut*, ii, 1834, No. 72, p. 316. (Soc. des Sc. et Arts de Rochefort.)

Not seen: title from Carus and Engelmann.

1834–41. Swainson, W. The | Ornithological | Drawings | of | William Swainson | Esq., A. C. G. | [etc., 4 lines.] | — | Part 5 [mut. mut.]. | The Birds of Brazil. | — | London: | Baldwin & Cradock. | Treuttel. Würtz & Richter Paris, & Strasbourgh. | Oliver & Boyd, Edinburgh Robinson's Liverpool. | Rob^{t}. Havell, 77, Oxford St^{t}. Price 7/. Cold. 10/6. Double Plates 15/. | [n. d. "1834–1841."] 8vo. Engr. cover-title and 62 ("78") colored plates. "Pub. in 7 parts."

The piece handled consists of 62 colored plates, without any text, there being only the engraved cover-title above transcribed. It is not dated; but there is pencilled in msc. of T. N.

1834–41. Swainson, W.—Continued.

Gill a date, "1834-1841"; and the same hand notes on the fly-leaf "Part 6 wanting", leaving it open to infer that there are several lots or "Parts". The number of Part "5" is also written, not printed; so that probably the same engraved title covers other parts. The dates above cited are presumed to be those of publication of the whole series. The plates are as follows; I do not know that these 62 (some cite "78") are all of them:—Pl. 1, *I*[*cterus*] *hæmorrhous.* 2, *C*[*assicus*] *affinis.* 3, *C. icteronotus.* 4, *C. nigerrimus.* 5, Blueheaded Tanager, "*A.*" *cyanocephala.* 6, *A. citrinella.* 7, *A. cuculata.* 8, *A. cyanoptera.* 9, Long-billed Puff Bird, "*T*[*amatia ?*]" *somnolenta.* 10, *T. leucotis.* 11, *T. maculata.* 12, *T. leucops.* 13, *T*[*roglodytes*] *æquinoctialis.* 14, *T. carinatus.* 15, *T. nititans.* 16, *Thryothorus striolatus.* 17, Black-masked Tanager, *R*[*hampho . . . ?*] *gularis.* 18, *R. coccineus.* 19, same, ♀. 20, *R. atro-coccineus.* 21, *T*[*rochilus*] *cristatus.* 22, *T. delalandii.* 23, *P*[*ipra*] *galeata.* 24, *Calyptura cristata.* 25, *P*[*ipra*] *strigilata.* 26, *Pepra* [sic] *manacus.* 27, Mango Hummingbird, young. 28, *L*[*ampornis*] *mango.* 29, *T*[*rochilus*] *auritus.* 30, *T. moschitus.* 31, Black-backed Tanager, "*A.*" *melanotus* Sw. 32, *C*[*assicus*] *cristatus.* 33, *Lochmias squamulata* Sw. 34, *Lypornix striata.* 35, *L. rubicula.* 36, *L. tenebrosa.* 37, *T*[*anagra*] *cana* Sw. 38, *T. olivascens* Licht. 39, *T. episcopus.* 40, *T. mornata* [sic—lege *inornata*]. 41, *T. cœlestes.* 42, *T. ornata.* 43, Black-backed Tanager, "*A.*" *melanotis* [sic—lege *melanonotus*]. 44, *Pipra pareola.* 45, *P. caudata.* 46, *Tyrannula superciliosa.* 47, *T. megacephala.* 48, *T. modesta.* 49, *T. caniceps.* 50, *Tyrannus circumcinctus.* 51, *Megalophus regius.* 52, same. 53, *Tyrannula ferruginea.* 54, *T. curtipes.* 55, *Platyurus corniculatus.* 56, same, ♀. 57, *P. affinis.* 58, *Cyclarius* [sic] *guianensis.* 59, *Thamnophilus nævius.* 60, *T. bicolor.* 61, *Trogon auratus.* 62, same, ♀. The complete series is said to consist of 78 plates, published in 7 parts. Other titles of the same thing in current quotation are: "Ornithological Drawings, being figures of the rarer and most interesting Birds of Brazil"; and "A selection of the Birds of Brazil and Mexico."

1836. Kittlitz, F. H. v. Cinq nouvelles espèces d'Oiseaux du Chili. < *L'Institut*, iv, No. 190, 1836, p. 442.

Not seen: title from Carus and Engelmann. Compare 1831–35, same author. See, also, *Isis*, 1836, pp. 347–351.

1843. Goudot, J. Observations sur l'organisation et les habitudes du coq de roche péruvien (Pipra peruviana, Lath.), et du caurale (Ardea helias, Lin.). < *Guér. Mag. de Zool.*, 2e sér., 1843, Ois., pp. 1–4, pll. 37, 38.

Pl. 37, œuf du *Rupicola peruviana;* pl. 38, œuf de l'*Eurypyga phalenoïdes.*

1848. Schomburgk, R. H. The | History of Barbadoes; | comprising | a geographical and statistical | description of the Island; | a sketch of the | historical events since the settlement; | and an account of its | geology and natural productions. | By | Sir Robert H. Schomburgk, Ph. D., [etc., 6 lines.] | [Seal.] | London: | Longman, Brown, Green and Longmans. | 1848. 1 vol. Roy. 8vo. pp. i–xxii, 1–722, frontisp., eng. title, 7 other plates, 13 woodcc., folding sheet opp. p. 686.

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YARRELL.
Descriptions of Eggs of Chilian Birds, 1847.

B.—LOCALITIES.

[NOTE.—In the nature of the case some of the titles can scarcely be indexed here, and anonymous, pseudonymous, and ephemeral titles are mostly omitted, the intention being mainly to give a ready clue to the Faunal Lists, etc., of the leading geographical areas of Neotropical America. The few *Mexican* titles here given are only those that should have come in the Nearctic list given on a previous occasion. Articles relating to Central and South America at large are grouped together under the first head following. "West Indies" is given; but see also the several islands composing them.]

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Condamine. Relation d'un Voyage, 1749.
Sonnini. Sur les Coqs et Poules de l'Amérique du Sud, 1775.
Sonnini. Du Sasa, 1785.
Pallas. Zwey südamerikanische Vögel, 1782, (p. 307).
Humboldt. Ueber die Chinawälder, 1807.
Thunberg. Pipræ species novæ, 1822.
Bonaparte. Ten species of Birds, 1825.
Bonaparte. Note to ten species of Birds, 1825.
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Wagner. Beiträge zur Kenntniss der Wirbelthiere, 1831, (p. 308).
Vigors. New Birds collected by Cuming in Chile and Mexico, 1832, 1835.
Gould. Sur des Oiseaux, 1834.
Bonaparte. New Birds from Mexico and South America, 1837.
Bredow. Auszüge aus den Schreiben von C. Moritz, 1837.
d'Orbigny. Voyage, 1835–44–47.
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Lesson. Neue Vögel aus, 1837.
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Lafresnaye. Oiseaux nouveaux tués par Léclancher, 1840.
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Gould. Zoology of the Voyage of the Beagle, 1841.
Lesson. Sur les Ois. nouv. de la Mer du Sud, 1842.
Lesson. Species avium novæ aut minùs cognitæ, 1842.
Fraser. On Bridges's Collection of Birds, 1843.
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Des Murs. Quelques espèces nouvelles d'Oiseaux, 1845.
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Lafresnaye. Quelques Ois. nouv. rapportés par Delattre de Bolivie, de la Nouv. Grenade et de Panama, 1847, 1847.
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Deville. Descr. de quelques Ois nouv., 1849.
Deville. Quatre Ois. nouv. de l'expédition de M. Castlenau, 1851.
Deville. Observations faites en Amérique, 1852.

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Sclater. Deux nouvelles esp. d'Oiseaux, 1853, 1854.

Cassin. Gilliss's U. S. Astron. Exped., 1855.

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Lawrence. New species of Chordeiles and Polioptila, 1856.

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Gould. New Trogon and Odontophorus, 1857.

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Sclater. New genus and some new species, 1858.

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Moore. List of Birds collected by Leyland in Honduras, Belize, and Guatemala, 1859.

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Sclater. Cat. of a Collection of American Birds, 1861–62.

Lawrence. New Vireonidæ and Rallidæ, 1863.

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AMERICA (*neotropica*).—Continued.

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Lawrence. Five new American Birds, 1875.

Orton. Andes and Amazon, 1876.

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Sclater and Salvin. On Steere's Collection, 1878.

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- *Sclater.* Birds transmitted by Bates from the Upper Amazon, 1857.
- *Pelzeln.* Ueber vier von Natterer gesammelte neue Vögel von, 1862.
- *Bates.* Naturalist on the Amazon, 1863, 1864.
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- *Euler.* 'Zur Naturgeschichte der Vögel von, 1867–69.
- *Pelzeln.* Zur Ornithologie Brasiliens, 1868–70.
- *Rogers.* Natural History Notes from Rio, 1869.
- *Reinhardt.* Bidrag til Kundskab om Fuglefaunaen i Brasiliens Campos, 1870, 1870.
- *Hamilton.* Birds from São Paulo, 1871.
- *Salvin.* Notice of Layard's Departure for Pará, 1872.
- *Layard.* Letters on Birds seen on voyage to Pará, 1872, 1873.
- *Layard.* Notes on Birds observed at Pará, 1873.
- *Pelzeln.* Verz. einer Sendung aus Neufreiburg, 1873.
- *Berlepsch.* Zur Ornithologie Santa Catharina's, 1873–74.
- *Cabanis.* Uebersicht der von Euler in Cantagallo ges. Vögel, 1874.
- *Allen.* Birds collected by Linden near Santarem, 1877.

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- *Molina.* Storia Naturali, 1776, 1782, 1783, 1786, 1788, 1789, 1808, 1809.
- *Lesson.* Sur quelques Oiseaux de, 1834, (p. 308).
- *Kittlitz.* Cinq nouv. esp. d'Oiseaux de, 1836, (p. 309).
- *Kittlitz.* Ueber einige Vögel von, 1836.
- *Bridges.* Various Birds from, 1841.
- *Fraser.* On Birds of, 1845.
- *Fraser.* Exhibition of two Birds of, 1845.
- *Gay.* Historia de, 1847.
- *Philippi.* Ueber einige Vögel Chile's, 1855.

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- *Boeck.* Bemerk. über die Ornis der Provinz Valdivia, 1855.
- *Philippi.* Ueber einige Chilenische Vögel, 1857.
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- *Germain.* On Nidification of some Birds of, 1860.
- *Philippi.* Ueber zwei neue Enten und Fringilla barbata, 1860.
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- *Philippi.* Neue Ente und Seeschwalbe, 1863, (p. 309).
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- *Philippi.* Letter on certain Birds of, 1868.
- *Philippi.* Catálogo de las Aves existentes en el Museo de Santiago, 1868.
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- *Landbeck.* Sobre algunos Pájaros Chilenos, 1872.
- *Mathew.* Notes from Coquimbo, 1873.
- *Juliet.* Comission Esploradora de Chiloe, 1874.
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- *Reed.* Remarks on Birds of Juan Fernandez, 1874.
- *Salvin.* Additional Notes on Birds of Juan Fernandez, 1874.
- *Philippi.* Escursion al Cajon de los Cipreses, 1875.
- *Reed.* Apuntes de la Zoologia de Cauquenas, 1877.

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- *Cabanis.* Uebersicht der im Berliner Mus. befind. Vögel von, 1861–69.
- *Cassin.* Conirostral Birds from, 1865.
- *Salvin.* Seventeen new Birds from, 1864.

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- *Salvadori.* Intorno ad alcuni Uccelli di, 1868.
- *Lawrence.* Catalogue of Birds found in, 1868–69.
- *Frantzius.* Ueber d. geogr. Verbreitung der Vögel von, 1869.
- *Salvin.* Notes on Lawrence's List, 1869.
- *Salvin.* Additional Notes on Lawrence's List, 1870.
- *Lawrence.* Four new Birds from, 1874.
- *Boucard.* On Birds collected in, 1878.

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- *Vigors.* On some Birds of, 1828, 1830.
- *Taylor, R. C.* Notes on Natural Objects observed in, 1836.
- *d'Orbigny.* Ramon de la Sagra's Histoire, 1839.
- *Yarrell.* Description of Eggs of Birds of, 1847.
- *Poey.* Catálogo metódico de las Aves de la Isla de, 1848.
- *Lembeye.* Aves de la Isla de, 1850.
- *Gundlach.* Five new Birds of, etc., 1852.
- *Arboleya.* Manual de la Isla de, 1852.
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- *Gundlach.* Ornithologisches aus Briefen von, 1859.
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- *Bishop.* Notes on Lembeye's 'Birds' of, 1878.

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- *Lawrence.* New Birds from, 1877.
- *Lawrence.* Provisional List of Ober's Birds from, 1877.

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- *Jardine.* Five Birds from Quito, 1857.
- *Sclater.* Collection of Birds received by Gould from Quijos in, 1854, 1855.
- *Jardine.* Jameson's Collections from Eastern Cordillera of, 1855, 1856.
- *Sclater.* Notes on Birds received by Verreaux from the Rio Napo, 1858, 1858.
- *Sclater.* New Birds from the Rio Napo, 1858.
- *Sclater.* List of Birds collected by Fraser in, 1858, 1858.
- *Sclater.* On New or Little-known Birds from the Rio Napo, 1859.
- *Sclater.* Two New Birds from the Rio Napo, 1860.
- *Sclater.* Birds collected by Fraser at Babahoyo, 1860.
- *Sclater.* Birds collected by Fraser at Esmeraldas, 1860.
- *Sclater.* Birds collected by Fraser at Pallatanga, 1860.
- *Sclater.* Additional Birds collected by Fraser at Pallatanga, 1860.
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- *Sclater and Salvin.* Birds collected by Hauxwell, at Pebas, on the Upper Amazon, 1867.
- *Lawrence.* Catalogue of Birds from Puna Island, 1869.
- *Orton.* Contrib. to Nat. Hist. of Valley of Quito, 1871.
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- *Salvin.* New Birds from Western, 1876.
- *Pelzeln.* Weitere Sendung von Vögeln aus, 1876.
- *Pelzeln.* Weitere Sendung von Vögeln aus, 1878.
- *Sclater and Salvin.* Three new Birds from, 1878.

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- *Garnot.* Sur la Zoologie des Iles Malouines, 1826, 1827, 1832.
- *Bernsée.* On Various Birds of East, 1855.
- *Gould.* List of Birds from, 1859.

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DEPARTMENT OF THE INTERIOR.
UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY.
F. V. HAYDEN, U. S. GEOLOGIST-IN-CHARGE.

BULLETIN

OF

THE UNITED STATES

GEOLOGICAL AND GEOGRAPHICAL SURVEY

OF

THE TERRITORIES.

VOLUME V.....NUMBER 3.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
November 30, 1879.

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BULLETIN

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UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

VOLUME V. 1879. NUMBER 3.

Art. XVIII.—On the Species of the Genus Bassaris.*

By J. A. Allen.

The mammals of the genus *Bassaris* were for a long time a puzzle to the systematists, who, however, generally referred them to the *Viverridæ*, as constituting the only American representatives of the family. Some authors, as Gervais, while believing that they were Viverrine, have seen in them some affinities with the *Mustelidæ*, while others, as Waterhouse and Turner, have hinted at an Ursine alliance, especially to such forms as *Procyon* and *Nasua*. Professor Flower,† who has especially investigated the affinities of *Bassaris*, concludes: "On the whole I think there can be little question that evidence has been adduced to prove that Bassaris is a member of the Arctoid sub-division of the Carnivora, and among these approaches most nearly to *Procyon* and *Nasua*" (l. c., p. 34). Dr. Gill, in 1872,‡ assigned it the rank of a family (*Bassarididæ*) of the *Arctoidea*, and a position at the end of the group, following *Procyonidæ*.

GENERAL HISTORY.

Although the Bassarids are of common occurrence throughout Mexico, and range also far both to the southward and northward of that country, and were known to Hernandez as early as the middle of the seventeenth century, they escaped the notice of systematic writers till within the last half century. The first modern account of them was published by Lichtenstein in 1830, based on specimens sent from Mexico by Herr Deppe, in 1826 and subsequent years, of what proves to have been the northern form of the genus. This Lichtenstein, in his commentary on the mammals noticed by Hernandez,* named and briefly described *Bassaris astuta*, he recognizing in it the *Cacamiztli*, or *Caca-mixtli*, of Hernandez, which the latter also mentioned under the name *Tepe-maxtla*. These are still the common native names of the species, and mean respectively "Rush Cat" and "Bush Cat." Shortly after *B. astuta* was more fully described by Lichtenstein, and also figured.†

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* The material on which the present paper is based is almost exclusively that of the National Museum, for the free use of which I am indebted to its able director, Prof. Spencer F. Baird.

† On the Value of the Characters of the Base of the Cranium in the Classification of the Order Carnivora, and on the Systematic Position of Bassaris and other disputed forms. By William Henry Flower, F. R. S., F. Z. S., etc., Conservator of the Museum of the Royal College of Surgeons. Proc. Zoöl. Soc. Lond., 1869, pp. 4–37.—*Bassaris* is treated at pp. 31–34, which see for a fuller history of the views of systematists respecting its affinities.

‡ Arrangement of the Families of Mammals, p. 67.

During the next thirty years, the habits of *Bassaris astuta* were referred to by different writers, and the species repeatedly described and figured, the illustrations including colored figures of the animal and representations of the skull, skeleton, and dentition.‡ The notices of *Bassaris* published prior to 1860 all relate, singularly enough, exclusively to *B. astuta*, at which date the second or southern species (*B. sumichrasti*) was first described.

Professor Baird, writing in 1858 (Mam. N. Amer., p. 147), says: "It is as yet uncertain whether America possesses one or two species of *Bassaris*, further investigation being necessary to determine the character of the California species. They are found as far north as Red River, Arkansas, on the eastern slope of the continent; on the western to the latitude of San Francisco; southward they extend throughout temperate Mexico. They bear in the United States the name of civet, Mexican, or ring-tailed cats, and are frequently tamed in Mexico and California; in the latter country they are great pets of the miners." He adds: "Only one authenticated skin, (No. 2343,) has been received from California; this is a hunter's skin, not sufficiently perfect to furnish a description." The following year Professor Baird described (Rep. U. S. and Mex. Bound. Surv., Mam., pp. 18, 19), under the name *Bassaris astuta*, two specimens from Texas and another from an unknown locality, supposed to have come from California, naming the latter provisionally *Bassaris raptor*. His detailed account of the external features of the Texas specimens indicate very fairly the northeastern phase of *Bassaris astuta*. Respecting the specimen to which the name *B. raptor* was provisionally given, he says: "In the spring of 1852 (April 23), a specimen of

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* Erläuterungen der Nachrichten des Fran. Hernandez von den vierfüssigen Thieren Neuspaniens. Abhandlungen d. Berlin. Akad. 1827 (1830), pp. 89–128.—*Bassaris astuta* is described and named at p. 119. The paper was read before the academy in 1827, but not published till 1830.

The genus *Bassaris* and the species *B. astuta* were also described by Wagler in the "Isis" for 1831 (p. 511), one year subsequent to the publication of Lichtenstein's above-cited paper, both being accredited by him to Lichsenstein; yet various writers have attributed the earliest notice of *B. astuta* to Wagler.

† Darstellung neuer oder weniger bekannter Säugethiere in Abbildungen und Beschreibungen von fünfundsechzig Arten, 1827–1834, pl. xliii.

‡ See *posteà*, table of reference under *B. astuta*. The skeleton has been figured by Gervais and De Blainville, the dentition by Blainville and Giebel, the skull by Lichtenstein, Baird, and Flower, and the animal by Lichtenstein, Wagner, Audubon and Bachman, Wolf and Sclater, and Cordero.

Bassaris was killed in a hen-roost, near Washington, after it had committed great devastation among the poultry of the neighborhood. It had evidently escaped from confinement, as shown by the marks of a collar around the neck. There was, of course, no indication whence it came originally, but it was supposed to have been brought from California. This specimen is somewhat different from those obtained in Mexico and Texas, although perhaps not specifically distinct. The tail is strikingly different in having the black rings fewer in number and of much greater extent compared with the white portion. Of these black rings there are only five distinctly marked ones besides the tip, and the last or subterminal one is more than two inches long instead of about one. Below the black ring is nearly complete, separated only for the thickness of the vertebræ by the white of the under surface. There is no appreciable difference in the colors of the remaining portions of the body. The ears are decidedly smaller. Very considerable differences are discernible between the skull of this specimen and the others; the cranium is broader, but more constricted behind the orbital processes of the frontal bone; the distance between the zygomata is considerably greater, and the temporal crests of opposite sides much closer together. The pterygoid bones, also, are further apart. The proportion of greatest breadth of skull to length is as 63 to 100 instead of 59, as in No. 4 [female], from Texas. Should the examination of further specimens show these distinctions to be such as to indicate a different species, it might be called *Bassaris raptor*." In passing, I may add that the examination of more material shows that the cranial differences here indicated are not important, and show mainly only the usual variations accompanying differences of age in *Bassaris astuta*. The color of the tail very nearly coincides with that of a specimen before me from Oregon, with which it so much more nearly agrees than with Texas examples that I have little doubt that the supposed Californian origin of *Bassaris raptor* is its correct locality. The wide separation of the pterygoid bones is certainly exceptional, but is probably strictly individual, as I find a perfectly parallel variation in this highly variable feature in the skulls of *B. sumichrasti*. Consequently in *Bassaris raptor* we have the earliest synonym of *B. astuta*.

In 1860, M. De Saussure described and figured (Rev. et Mag. de Zool., 2ᵉ sér., xii, Jan., 1860, p. 7, pl. i, animal, fig. uncolored), a second species, under the name *Bassaris sumichrasti*, based on a single very old individual collected by himself in Mexico. Although De Saussure's description is explicit and detailed, and notwithstanding that in his careful comparison of the new species with *B. astuta* (of which he had a large suite representing all ages), he clearly set forth all the leading points of difference, Dr. Peters, in 1874 (Monatsb. der k. Akad. der Wissensch. zu Berlin, 1874, p. 704, pll. i, ii, meeting of Nov. 16, 1874), referred *B. sumichrasti* of De Saussure doubtfully to *B. raptor*, Baird, at the same time redescribing *B. sumichrasti* under the name *Bassaris variabilis*. At all events, he says: "Es war bis jetzt mit Sicherheit nur eine Art dieser Gattung, *Bassaris astuta*, aus Mexico bekannt, der ich eine zweite aus Centralamerica hinzufügen kann." Yet he notes among the distinctive characters of *B. variabilis* most of those especially mentioned by De Saussure as characterizing *B. sumichrasti*, omitting, however, some, and adding others not mentioned by De Saussure. Peters's *B. variabilis* was based on a skin and skull of a very old male, and on a second skin supposed to be that of a female, all of which he figured.

Almost simultaneously with the publication of Dr. Peters's paper, Señor Cordero again described (La Naturaleza, iii, p. 270, with a plate; the paper is dated Dec. 1, 1874, and was published May 31, 1875) *B. sumichrasti*, under the name *Bassaris monticola*. His description is very detailed, and in his comparison of *B. monticola* with *B. astuta* he brings into strong relief the distinctive characters of the two species, they embracing all those previously mentioned by De Saussure and Peters as characterizing respectively *B. sumichrasti* and *B. variabilis*. He gives also excellent comparative (colored) figures of the external characters of the two species, and illustrates the cranial characters and dentition of *B. monticola*. Although he shows himself to have been perfectly conversant with the two species of *Bassaris*, he appears not to have been aware that his *B. monticola* had been previously described and named by De Saussure.

Dr. Gray in 1864 (Proc. Zoöl. Soc. Lond., 1864, 512) and in 1869 (Cat. Carn. Pachyd. and Edent. Mam., 1869, 246) gave a "var. *fulvescens*," adding, "Fur more fulvous, perhaps of a different season." To his "*Bassaris astuta* var. *fulvescens*" he referred unqualifiedly De Saussure's *B. sumichrasti*. His description of the cranial characters seems to indicate that he had before him only skulls of *B. astuta*.

From the foregoing it will be seen that the large southern species of *Bassaris* has been thrice described as new; that the skull has been figured twice; and that one plain and three colored (Dr. Peters gives two) figures of the animal have been given.

DIFFERENTIAL CHARACTERS OF THE SPECIES.

The external and cranial characters of the Bassarids are so well known that it is unnecessary in the present connection to give them in detail further than is necessary to the elucidation of the distinctive features of the two species, which, so far as at present known, constitute the genus *Bassaris*. They are, as is well known, in general appearance small fox-like animals, with soft, loose pelage, pointed nose and ears, and a ringed tail as long as the body, giving a *tout ensemble* intermediate, on the one hand, between the Coatis and Raccoons, and the Foxes on the other, but of smaller size than either. The distinctive characters of the species are indicated in the subjoined diagnoses.

Synopsis of the Species.

COMMON CHARACTERS.—Tail with the hairs about equal to or a little longer than the head and body. Color above gray, more or less suffused with yellowish-brown, with a wash of black of variable amount, produced by the black tips of the longer hairs, usually strongest along the middle of the back; below whitish, tinged more or less strongly with pale yellow. Eyes narrowly encircled with brownish-black. Behind and above each eye a large, sometimes rather indistinct, spot of yellowish-gray, and a smaller spot of the same color below each eye. Tail with alternating rings of white or grayish-white and black, and black at the tip. The *usual* number of rings of either color varies from 7 to 9. The females are considerably smaller than the males.

B. astuta.	*B. sumichrasti.*
Ears rather narrow and pointed. Soles and palms with short soft hair on the edges and at the base of the toes between the naked pads.	Ears broader and shorter, absolutely as well as relatively, and less pointed. Soles and palms wholly naked.
Upper surface of the feet slightly or not at all blackish.	Upper surface of the feet black or blackish, and general color of dorsal surface usually darker than in *B. astuta.*
Light rings of the tail broad, pure white, or sometimes slightly grayish- or yellowish-white, nearly as broad as the intervening black ones. The black rings are divided below by a more or less broad mesial band of white, running nearly the whole length of the tail, the lower surface of which is white, broadly scalloped on the edges with black.	Light rings of the tail narrow, gray, sometimes tinged with brownish. The black rings are much broader than the alternating white ones, unbroken, completely encircling the tail, the lower surface of the tail scarcely differing in color from the upper.
Anterior surface of upper incisors smooth, the cutting-edge even.	Anterior surface of the upper incisors with two slight longitudinal grooves deepening apically, producing a distinctly crenulated cutting-edge.
First upper molar with both limbs longer and narrower than in *B. sumichrasti,* the inner with two distinct cusps, and another on the posterior outer edge of the tooth.	First upper molar shorter and thicker than in *B. astuta,* with no accessory cusp on the posterior outer corner, and lacking that seen on inner anterior angle of the tooth in *B. astuta.*
Second upper molar with the transverse diameter, compared with the antero-posterior, relatively greater than in *B. sumichrasti.*	Second upper molar heavier than in *B. astuta,* with a relatively shorter transverse diameter.
Last lower premolar with a small accessory cusp on the posterior border.	Last lower premolar with no accessory cusp on the posterior border.
Canines and whole dental armature relatively weaker, the molars narrower, and their cusps sharper and more numerous than in *B. sumichrasti,* in specimens of corresponding ages and degree of attrition of the teeth.	
Auditory bullæ strongly inflated, spherical, the meatus auditorius very large.	Auditory bullæ less swollen, flattened on the posterior inner face, with a much smaller meatus auditorius.
Size less than in *B. sumichrasti.* Length of head and body 14 in. (♀) to 17 in. (♂); tail-vertebræ about 12 to 15; tail to end of hairs about equal to length of head and body. Skull, length 3.00 to 3.25; width 1.85 to 2.05.	Size larger. Length of head and body 15½ in. (♀) to 19½ in. (♂); tail-vertebræ 16 to 20; tail to end of hairs 18 to 22. Skull, length 3.25 to 3.60; width 2.25 to 2.50.

BASSARIS ASTUTA, *Lichtenstein.*

Northern Civet Cat.

Bassaris astuta, LICHTENSTEIN, Abhandl. d. Berlin. Acad. 1827, (1830), 119; Darstellung Säugeth., 1827–1834, pl. xliii (skull and animal).—WAGLER, Isis, 1831, 511.—GERVAIS, Voy. de la Bonite, Zoöl., i, 1841, 18, pl. iv (skeleton and visceral anatomy).—CHARLESWORTH, Proc. Zoöl. Soc. Lond., 1841, 60 (habits).—DE BLAINVILLE, Ostéog., Des Mustelas, 1842, pl. v *bis* (skeleton), pl. xiii (dentition).—WAGNER, Schreber's Säugeth., Suppl., ii, 1841, 278, pl. cxxv C (animal).—THOMSON, Proc. Zoöl. Soc. Lond., 1842, 10 (habits).—AUDUBON & BACHMAN, Quad. N. Am., ii, 1851, 314, pl. xcviii (animal).—GIEBEL, Odontog., 1855, 31, pl. xi, fig. 10 (dentition); Säugeth., 1855, 803.—BAIRD, Mam. N. Am., 1858, 147; Rep. U. S. and Mex. Bound Surv., ii, 1859, Mam., 18, pl. xiv, fig. 2 (skull).—WOLF & SCLATER, Zoölog. Sketches, i, 1861, pl. xiv (animal, from life).—GRAY, Proc. Zoöl. Soc. Lond., 1864, 512; Cat. Carn. Pachy. and Edent. Mam., 1869, 246.—COUES, Am. Nat., i, 1867, 351 (Arizona).—FLOWER, Proc. Zoöl. Soc. Lond., 1869, 31, fig. 3 *a*, skull (systematic position).—VILLADA, La Naturaleza, i, 1870, 297.—SULLIVANT, Am. Nat., vi, 1872, 363 (Ohio).—COUES, Am. Nat., vi, 1872, 264 (distribution).—ALLEN, Bull. Essex Institute, vi, 1874, 45 (Kansas).—"KIRKPATRICK, Proc. Cleveland Acad. Nat. Sci., 1874, 377 (Ohio)."—CORDERO, La Naturaleza, 1875, iii, 273, plate (animal).—COUES, Amer. Nat., xii, 1878, 253 (Rogue River, Southwestern Oregon).

Bassaris astuta var. *fulvescens*, GRAY, Proc. Zoöl. Soc. Lond., 1864, 512; Cat. Carn. Pachy. and Edent. Mam., 1869, 246.

Bassaris raptor, BAIRD, Rep. U. S. and Mex. Bound Surv., ii, 1859, Mam., 19.

Caca-miztle, *Caco-Mixtle*, and *Tepe-Maxtlaton*, HERNANDEZ.

Cacomistle, *Cacamiztli*, and *Cuapiote*, of the Mexicans.

Katzenfrett, German authors.

Civet Cat, *Ring-tailed Civet Cat*, *Texas Civet Cat*, *Mexican Civet Cat*, *Cat Squirrel*, *Mountain Cat*, *Raccoon Fox*, *etc.*, of English writers, and locally in the United States.

The comparative diagnoses above given indicate the average characters of the species, but a series of eight specimens shows a considerable range of variation in color and other details. Aside from the smaller size of the female, I have noted no other important sexual differences. The number of white rings on the tail in *B. astuta* varies from six to nine, the usual number being either seven or eight. They vary in width, being usually narrower than the black ones, sometimes equalling them, while in rare instances the white rings are the wider. The general color above is gray or brownish-gray, varying in some examples to yellowish-brown, the anterior half of the body being usually purer gray (less suffused with brownish-yellow) than the posterior half. The black terminating the longer hairs varies greatly in amount, but always gives a conspicuous blackish cast to the dorsal surface, while in some the prevailing color, especially along the middle of the back, is black. In such specimens, the upper surface of the feet is more or less blackish or brownish-black; the black rings in the tail are broader and the black terminal portion of the tail more extended. A single skin from Oregon* is dark throughout, being as black as the darkest examples of *B. sumichrasti*, and contrasts strongly with the light-colored specimens from Texas and Northeastern

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*This is the specimen mentioned by Dr. Coues in Amer. Nat., xii, 1878, p. 253.

Mexico. The next darkest specimen is from Orizaba, Mexico. The lower surface is sometimes nearly pure white, but is usually strongly tinged with pale yellow, varying in some specimens to pale brownish-yellow, especially on the chin and throat. The relative amount of black and white on the tail is also variable. In the lighter specimens, the greater portions of the lower surface of the tail is pure white; in others, the black rings are only broken below by a narrow band of white. In the Oregon specimen, they are almost continuous below (the last two apical ones wholly so), though much narrower than above. The rings usually increase in width from the base of the tail apically, especially in case of the black ones.

The extremes of variation in color are in specimens No. 11849, from Camp Grant, Arizona (E. Palmer), and No. 12849, from Oregon (A. H. Wood). The Arizona specimen is pale brownish-gray above, varied with blackish, principally along the median line, caused by the black tips of the long hairs. Below it is pale yellowish-white. The tail is mostly white below, but above is crossed by alternate rings of black and white of nearly equal breadth. The Oregon specimen has the prevailing tint of the dorsal region intense black, quite obscuring the brownish-gray ground-color. Below, it is strongly brownish-yellow, deepest on the throat and chin. The tail is mostly black above, the white being mostly half-rings confined to the lower surface. These two specimens accord with the peculiar phases of geographical color-variation commonly characterizing the mammals and birds of the two regions in question. Should the Oregon specimen here described prove to indicate the average condition of the species along the Pacific coast to the northward, as seems probable, the form there prevailing may require to be varietally distinguished under the name *raptor*, Baird, this name doubtless referring to the Pacific coast form, as already explained. Five specimens from near the southern border of Texas agree in being rather darker than the Arizona specimen, and present only a moderate range of color-variation. A specimen from Orizaba (No. 8567, ♂, Botteri) is rather darker, the lower surface more strongly yellow, and the white on the tail is slightly tinged with yellow.

In a young specimen about one-fourth grown, and still retaining the milk dentition, the pelage is soft, long, and woolly; the color above pale yellowish-brown varied with darker brown, but with *no black;* below grayish-white, faintly tinged with yellow anteriorly. The tail has seven white rings, and the light spots below and behind the eyes are nearly pure white.

In old female skulls, in which the teeth show a considerable degree of attrition, there is no trace of a crest. Probably in old males this will be found to be present, but the only male specimens before me are only of middle age and do not show it. The most notable variation in the skulls of *B. astuta* is the unusually wide separation of the pterygoid bones, and the consequent unusual breadth of the posterior nares in the original skull of Baird's *B. raptor.* As this is a feature in which variation is apt to occur, and as my series of skulls of *B. sumichrasti* presents an example equally aberrant from the usual condition in the last-named species, I cannot look upon it as other than an individual variation of more or less frequent occurrence in other mammals.

GEOGRAPHICAL DISTRIBUTION.—The Northern Civet Cat appears to range throughout the temperate portions of Mexico, and thence northward far into the United States. The most southern localities represented by the specimens before me are Orizaba in the State of Vera Cruz, San Luis Potosi in the interior, and the Sierra Santiago near the Pacific coast. It is said to be a well-known inhabitant of California, and ranges thence northward into Southwestern Oregon, where, however, it is supposed to be of rare occurrence.* More to the eastward it has been found in Arizona, and has long been known to occur throughout most parts of Texas. I found it to be a well-known animal in Middle Kansas, and a number of specimens have been taken at different times as far northward and eastward as Ohio. Though nowhere apparently abundant, it appears to be rather common in Northern Mexico and in Texas, but further northward and eastward is evidently rare.

BASSARIS SUMICHRASTI, *De Saussure.*

Southern Civet Cat.

Bassaris sumichrasti, DE SAUSSURE, Rev. et Mag. de Zoologie, 2e sér., xii, 1860, 7, pl. i (animal).

Bassaris variabilis, PETERS, Monatsb. d. K. P. Akad. Wissensch. zu Berlin, 1874, 704, pl. i (animal), pl. ii (skull).

Bassaris monticola, CORDERO, La Naturaleza, iii, 1875, 270, plate (animal and skull).

Tepechichi del Cofre de Perote, Cacomistle de monte, CORDERO, l. c., p. 270.

Bassaris sumichrasti presents variations in general color strictly parallel with those already noted as occurring in *B. astuta.* The ground-color above varies from nearly pure gray to yellowish-brown, and even golden, and the wash of black is sometimes sufficient to render this the prevalent tint of the dorsal surface. The yellowish-brown suffusion is always much stronger on the posterior half of the body than it is anteriorly. The color of the ventral surface varies from nearly pure white to pale gamboge-yellow. The dorsal surface of the feet is generally black, always decidedly blackish in all the specimens examined. The terminal fourth or more of the tail is usually deep black, with sometimes faint indications of one or two gray rings on the lower surface. The light rings are much narrower than the intermediate black ones, and vary in different specimens from pure gray to whitish-gray and yellowish gray. They are usually broader on the lower side of the tail than on the upper. The number of light rings more or less distinctly traceable varies from seven to ten, but is usually either eight or nine. These remarks are based on an examination of seven skins from Southern Mexico and Costa Rica.

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*See Coues, Am. Nat., xii, 1878, p. 253.

Of two specimens taken at Tehuantepec, January 15, 1869, and labelled by the collector (Prof. F. Sumichrast) as found *in coitu*, the male is much the larger, grayish-brown above, varied with black, and strongly suffused with fulvous posteriorly; below, pale yellow; terminal third of the tail wholly black; the light rings are gray; length of head and body 19½ in.; tail-vertebræ 20 in.; tail to end of hairs 22 in. The female is much purer gray above, with only a slight suffusion of brownish-fulvous posteriorly; below, pale yellow; the light rings of the tail whitish-gray; length of head and body 15½ in.; tail-vertebræ 18 in.; tail to end of hairs 20 in. Another male from the same locality, collected in March, 1872, agrees very nearly in color with the male already described, but is rather less strongly suffused with brownish-fulvous; the light tail-rings are grayish-white, and only the terminal fifth of the tail is wholly black. Another example (sex unknown) from Mirador (Dr. Sartorius) is much darker dorsally throughout, where the prevailing tint is decidedly black, the light tail-rings are narrower and more indistinct, and the terminal third of the tail is wholly black. The black prevails on the tail to such an extent that above the light rings are well defined only toward the base of the tail. Two specimens from La Palma, Costa Rica, collected in December, 1876 (J. C. Zeledon), differ very little from the last, except that the light rings of the tail are more distinct and whitish-gray.

It will thus be seen that *B. sumichrasti* is considerably larger than *B. astuta*, darker or more blackish in color, with a relatively longer tail, on which the light annulations are narrower, rather more numerous, and unbroken below, where they are merely a little narrower than they are on the upper surface. The ears are broader, less pointed, and about one-fifth shorter than in *B. astuta*, notwithstanding the smaller size of the last-named species.

Dr. Dugés, in some remarks appended to Cordero's description of his *B. monticola*, rather questions the importance of some of the characters given by Cordero as distinguishing *B. monticola* from *B. astuta*, especially the grooving of the incisors, stating that they are to be found also in young examples of *B. astuta*, and that they are features that probably disappear with age. Dr. Dugés's remarks respecting other characters, as well as this, show that he has evidently confounded the two species. In respect to the trilobed border of the incisors, which Cordero refers to as having "la figura de una flor de lis," I may say that I have been unable to find any traces of this character in wholly unworn teeth of *B. astuta*, while in *B. sumichrasti* it persists in the very oldest specimens, and is even present in one example in which the teeth are all very much worn and some of the incisors are broken off, the two or three remaining incisors still showing the grooves and the resulting lobed cutting-edge.

GEOGRAPHICAL DISTRIBUTION.—Neither De Saussure, Peters, nor Cordero state definitely the localities whence their specimens of this animal were received. De Saussure gives merely "Mexique," and Peters says "aus Centralamerica." Cordero's introductory remarks seem to imply that his specimens were obtained in the vicinity of Jalapa. It is not mentioned by Tomes as included in the collection of mammals made by Mr. Salvin at Dueñas, Guatemala,* nor by Dr. von Frantzius in his list of the mammals of Costa Rica.† Consequently the only information I can give is limited to the material I have had opportunity of examining. The localities reprsented are Jalapa, Mirador, and Tehuantepec, Mexico, and La Palma, Costa Rica. As Cordero refers to his having examined eight or ten specimens, it is doubtless not uncommon about Jalapa, and probably ranges throughout Southern Mexico, Guatemala, and Costa Rica. To what extent the habitats of the two species of *Bassaris* overlap still remains to be determined. The above-mentioned Orizaba specimen of *B. astuta* shows that the two species occur together in the State of Vera Cruz, and *B. astuta* may be inferred to be the prevailing form about the city of Mexico.

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*Report on a Collection of Mammals made by Osbert Salvin, Esq., F. Z. S., at Dueñas, Guatemala, with notes on some of the species by Mr. Fraser. By Robert F. Tomes, Corr. Mem. Z. S. <Proc. Zoöl. Soc. Lond., 1861, pp. 278–288.

†Die Säugethiere Costaricas, ein Beitrag zur Kenntniss der geographischen Verbreitung der Säugethiere Amerikas. Von Dr. A. von Frantzius. <Archiv für Naturgeschichte, 1869, i, pp. 247–325.

Art. XIX.—The American Bembecidæ: Tribe Stizini.

By W. H. Patton.

STIZINI.

Labrum exserted, entire. Submedial cell of the posterior wings extending far beyond the medial cell on the externo-medial nervure. Intermediate tibiæ armed with two spines at the apex. Ocelli perfect; the posterior ocelli smaller than the anterior one.

Group. SPHECII.

Marginal cell lanceolate, extending beyond the tip of the third submarginal. Submarginal vein beneath the second submarginal cell flexed to meet the first recurrent nervure, the latter inserted nearly in a line with the portion of the submarginal vein beyond. Submedial cell of the posterior wings broad and terminated by a sinuous transverse nervure. ♀, Spurs of the posterior tibiæ greatly enlarged; a subtriangular enclosure on the dorsal valve of the abdomen. ♂, A single spine at the apex of the abdomen; sixth ventral segment elongate and acute, hiding the seventh ventral; pleural lobes of the seventh segment not distinct.

SPHECIUS Dahlb. (1843).

Syn. *Hogardia* Lepel. (1845).
Stizus Smith (nec Latr.).
Type: *Sphecius speciosus* (Drury) Dahlb.

Head well rounded out behind the eyes; the axes of the eyes parallel, the inner margin slightly excavated above. Clypeus subtriangular, the upper corner squarely cut off, the lower edge slightly rounded out on each side and sinuated in the middle. Labrum with its length not half as great as its breadth. Mandibles stout, very unequally bidentate. Antennæ of similar form in the two sexes, thickened towards the tip, the third joint equalling in length the two following taken together, the antennæ of the male not armed with spines, and the apical joint neither lengthened nor excavated. The 4th to the 13th joints of the male antennæ with a narrow groove beneath. Legs stout, the pulvillus large. Legs of the female very strongly spinose; joints of the anterior tarsi not produced at the tip, fringed externally with spines which are not half as long as the apical joint of the tarsus; the two basal joints of the intermediate tarsi produced at the tip externally, the process terminating in a stout spine; basal joint of the posterior tarsi long; the spurs of the posterior tibiæ flattened and dilated, the inner spur curved and almost or quite equalling the basal joint of the tarsus in length. Legs of the male not so stout and not so spinose; basal joints of the intermediate tarsi not produced, the basal joint not dilated and not excavated; the spurs of the posterior tibiæ not half as long as the basal joint of the tarsus. Tip of the abdomen of the female with a well defined, elongated dorsal area. Eighth ventral segment of the male armed with a stout, curved spine, the tip of which is usually exserted, the rest of the eighth segment concealed, but both the dorsal and ventral arcs form chitinous plates. The claspers of moderate size. Apex of the abdomen in both sexes acute.

Say, in describing *grandis*, pointed out the fact that that species, together with *speciosus*, should be set apart from *Stizus* proper, and gave, as a character to separate the two groups, the absence of a spine at the tip of the abdomen in the males of the larger species. Say's figure of *grandis* ♂ represents the abdomen in a contracted state. It is therefore probable that the spine, being withdrawn, was overlooked by him; for the central spine is large in *Sphecius*, but is capable of being withdrawn out of sight, as are also the three spines of *Stizus unicinctus*. Both Dahlbom and Lepeletier separated the genera on account of differences in venation.

Unless the Australian *Stizus pectoralis* Smith (C. H. B. M. iv, p. 337, ♀, and Cruise Curaçoa, pl. xliv, f. 6, 1873) belongs here, this genus appears to be exclusively American.

Sphecia Hübner (1816) does not seem sufficiently like "*Sphecius*" to invalidate the latter name by its priority; but if it did, *Hogardia*, and not *Stizus*, should be used.

1. SPHECIUS SPECIOSUS.

Sphex speciosus Drury, Exotic Ins. ii, 71, t. 38, f. 1, ♀ (1773).
Vespa tricincta Fabr., Ent. Syst. ii, 254 (1793); Syst. Piez. 254 (1804).
Stizus speciosus Lepel. et Serv., Encycl. Méth. x, 496, t. 382, f. 6, ♀ (1825).
Stizus speciosus Westwood's Ed. Drury, Ex. Ins. ii, 77, pl. xxxviii, f. 1, ♀ (1837).
Stizus speciosus Blanchard, Dict. Univ. d'Hist. Nat., Atlas, vol. ii, Hym. pl. 2, f. 3, ♂, f. 7, ♀ (1849).
Stizus speciosus Smith, Cat. H. B. M. iv, 336 (1856).
Stizus speciosus Pack., Proc. E. S. P. vi, 442, ♀ (1867).
Stizus speciosus Walsh, Am. Ent. i, 129, f. 103, and ii, 87, f. 57, ♂ (1869–70).
Stizus speciosus Wood, Ins. Abroad, 473, f. 252, ♂, f. 253, ♀.
Sphecius speciosus Dahlb., Hym. Eur. i, 154, ♀ (1843), and i, 480, ♀ (1845).
Hogardia speciosa Lepel., Hym. iii, 290 (1845).
Var. *b*. *Stizus grandis* Say, West. Quart. Rep. ii, 77 (1823), and Am. Ent. p. 3, pl. 2, f. 1, ♀, f. 2, ♂.
Stizus grandis Pack., Proc. E. S. P. vi, 442, ♀ (1867).
Stizus grandis Riley, First Ann. Rep. Ins. Mo. 27, f. 12, ♀ (1869).
Stizus grandis Walsh, Am. Ent. i, 8, f. 3, ♀, and 129, f. 102, ♀ (1869).
Var. *c*. *Stizus fervidus* Cress., Trans. Am. E. S. iv, 223, ♀ (1872).

The species is found from Connecticut to Texas. After repeated comparisons of specimens, I am unable to find any specific characters for separating *grandis* and *fervidus* from *speciosus;* and I have no doubt that the same remark will apply to *Nevadensis* and *Hogardii*, and perhaps to *spectabilis.* At any rate, no specific characters are pointed out in the descriptions of those species sufficient to establish a distinction. The color of the body varies from black to ferruginous, and the yellow bands of the abdomen vary in number, size, and shape, but the type is the same in all. The claspers in the males of the four varieties are identical.

Var. *d. convallis.*—♀, Ferruginous, antennæ except two or three of the basal joints, mandibles except at base, and tarsal claws except at base, black. Wings colored as in *speciosus.* A small yellow spot on each side of the second segment of the abdomen. Inner spur of posterior tibiæ no longer than the outer spur, and not reaching the tip of the first tarsal joint. In *speciosus*, the inner spur usually reaches to the tip of the first tarsal joint, and slightly surpasses the outer spur. Length 1.25 in.—♂, Differs in having a yellow spot on each side of the first, second, and third segments of the abdomen, the spots on the second and third segments almost united; four yellow spots on the second ventral segment faintly connected to form a band; the breast marked with black, and the labrum, clypeus, and tubercles tinged with yellow. Length 1 in.—Yosemite Valley, Cal. (Mr. F. V. McDonald).

Walsh had no good reason (Am. Ent. i, 162, Apr. 1869) for changing the name of the African *Stizus grandis* Lepel. to *St. gigas.* At the time the African species was described, Say's *grandis* did not belong to the genus *Stizus.* Walsh's genus *Stizus* is not the same as Lepeletier's. Indeed, Walsh incorrectly referred his new species *brevipennis* to his own genus *Stizus.* At present, moreover, *Stizus grandis* Say, having become a synonym of *speciosus*, cannot conflict with any other species.

I have observed this wasp dragging its prey, the *Cicada pruinosa* Say. The Cicada, paralyzed by the sting of the wasp, was placed upon its back with the wings folded. The wasp, standing over it, caught hold of the bases of the wings with the claws of her intermediate tarsi, and, walking upon her anterior and the tips of her posterior tarsi, dragged the Cicada head foremost over the ground, the intermediate tarsi of the wasp extending from the bases of the wings to the eyes of the Cicada. Proceeding in this manner, and with an occasional flutter of the wings if harassed, she ascended a small evergreen tree, probably to attain an elevation from which to take flight, and was there lost to view.

2. SPHECIUS NEVADENSIS.

Stizus Nevadensis Cress., Trans. A. E. S. v, 99, ♂ (1875); Rep. U. S. Survey West of the 100th Meridian, v, 716, pl. 33, f. 1, ♂ (1876).

Habitat: *Nevada* and *Utah.*

3. SPHECIUS HOGARDII.

Stizus Hogardii Latr., Gen. Crust. et Ins. iv, 100, t. 13, f. 12, ♀ (1804).
Stizus Hogardii Lepel. et Serv., Encycl. Méth. x, 496, ♀ (1825).
Stizus Hogardii Smith, C. H. B. M. iv, pl. viii, f. 4, ♀ (1856).

Stizus Hogardii Cress., Proc. E. S. P. iv, 145, ♂ ♀ (1865).
Stizus Hogardii Pack., Proc. E. S. P. vi, 443, ♀ (1867).
Hogardia rufescens Lepel., Hym. iii, 289, t. 28, f. 5, ♀ (1845).
Hogardia rufescens Guer., La Sagra's Hist. Cuba, vii, 320 (1857).

Habitat: *Cuba*, *St. Domingo.*

4. SPHECIUS SPECTABILIS.

Stizus spectabilis Tasch., Zeit. ges. Nat. xlv, 360; ♂ ♀ (1875).

Habitat: *Brazil.*

Group. STIZI.

Marginal cell ovate-lanceolate, not extending as far as the third submarginal cell. Submarginal vein not flexed to meet the first recurrent nervure; the first recurrent nervure curved at the apex and inserted at an angle. Submedial cell of posterior wings terminated by a straight transverse nervure. ♀, Spurs of posterior tibiæ not dilated, reaching only to the middle of the first tarsal joint. ♂, Three spines, or only one, at the apex of the abdomen; the sixth ventral segment transverse; pleural lobes of the seventh segment separated by an incision and a suture from the tergum.

MEGASTIZUS n. g.

Type: *Stizus brevipennis* Walsh.

Eighth ventral segment of the male forming a broad, tridentate spine. Basal joint of intermediate tarsi not dilated and not excavated. Labrum with its length not half as great as its breadth. Submedial cell of the posterior wings narrow, extending no more than its own breadth beyond the origin of the transverse medial nervure.—Head well rounded out behind the eyes; axes of the eyes parallel, the inner margin very slightly excavated above. Face broader than in *Sphecius;* clypeus transverse, hexagonal, the upper side straight, the lower side excavated. The piece between the clypeus and the antennæ longer than in *Sphecius*, but not keeled as in *Stizus*. Mandibles short and stout, very unequally bidentate. Antennæ slender, thickest at the ninth joint, which is shorter than any other excepting the second; third joint arcuated, as long as the fourth and fifth taken together. The antennæ of the male unarmed, the apical joint slender like the preceding joints, much excavated beneath, the apex subtruncate; the antennæ not grooved and not pitted beneath; longer than in the female. Body robust, abdomen of the male elongate and surpassing the wings. Thorax short, metathorax vertically truncate; the base of the abdomen subtruncate and sessile. Legs stout, the pulvillus large. Anterior tarsi short, joints two to four transverse; anterior tarsi of the female slightly dilated exteriorly, but the joints not produced at the tip, fringed externally with spines equalling the fifth joint in length. Intermediate tarsi simple in both sexes, strongly spinose in the female. Spurs of the posterior tibiæ not half as long as the first tarsal joint. Sixth dorsal segment of the female suddenly narrowed just before the tip, the disk of this narrowed portion bounded laterally and posteriorly by a raised line, otherwise there is no dorsal area. Seventh ventral segment of the male triangular; the dorsal segment large and arched, its border rounded and very slightly sinuate, the pleural pieces beneath large, subtriangular. The eighth dorsal segment of the male large and well formed, but concealed; the eighth ventral represented (in the type) by a large and flat tridentate spine. The claspers very large and complex.

1. MEGASTIZUS BREVIPENNIS.

Stizus brevipennis Walsh, Am. Ent. i, 162, ♂ (April, 1869).
Larra Brendeli Taschenberg, Zeit. gesammten Nat. xlv, 361, ♂ (1875).

To Mr. S. W. Williston we are indebted for the discovery of the female of this species. In coloration it differs from the male only in having the third and the last joints of the antennæ mostly ferruginous and the tenth and eleventh joints spotted with ferruginous beneath, and in having the spots upon the scutellum of larger size.—Taken in Northwestern Kansas, Sept. 15th. The species varies slightly. The tegulæ and the stripe above them vary from yellow to ferruginous, the scutellum and base of postscutellum are sometimes tinged with ferruginous, the spots upon the venter vary in size, and two spots are often present on the second segment, the bands upon the third and fourth dorsal segments vary in width and may be either continuous or interrupted.

Habitat: *Illinois*, Walsh and Brendel; *Kansas*, Williston and Snow; *Texas*, Heiligbrodt.

2. MEGASTIZUS TEXANUS.

Stizus texanus Cress., Trans. Am. Ent. Soc. iv, 222, ♂ ♀ (1872).

Habitat: *Texas*.

SPHECIENUS n. g. (*Sphecius*, ἔνος).

Syn. *Sphecius* A. Costa (nec. Dahlb.).
Type: *Sphecienus nigricornis* (*Stizus nigricornis* Duf.).

Eighth ventral segment of the male armed with one stout spine. Terminal joint of the male antennæ elongate, arcuate. Basal joint of the intermediate tarsi of the male excavated beneath and dilated. Labrum semicircular. Submedial cell of posterior wings broad.—Not an American genus.

BEMBECINUS Costa (F. Nap., Expla. Plates, Aug. '59).

Syn. *Bembecinus* and *Stizomorphus* A. Costa, Fauna Naples, Text (Feb. 1859).
Type: *Bembecinus tridens* (*Bembecinus meridionalis* Costa and *Stizomorphus tridens* Costa, *Vespa tridens* Fabr.).

Eighth ventral segment of the male tridentate. Two of the terminal joints of the male antennæ armed with a spine beneath. Submedial cell of the posterior wings narrow, extending no more than its own breadth beyond the origin of the transverse medial nervure.—Not an American genus.

STIZUS Latr. (1802).

Syn. *Larra* Sm. (nec Latr.).
Bicyrtes Lepel.
Type: *Stizus tridentatus* (*Crabro tridentatus* Fabr., *Stizus bifasciatus* Latr.).

Eighth ventral segment of the male tridentate; *i. e.*, armed with three spines. Male antennæ unarmed; the apical joint excavated beneath, not elongate. Labrum with the length two-thirds of the breadth. Submedial cell of the posterior wings narrow, extending much more than its own breadth beyond the origin of the transverse medial nervure.—Head transversely flattened posteriorly, the cheeks behind the eyes being obsolete or in a plane with the occiput. Eyes distant on the vertex, converging beneath, the inner margin very slightly excavated above. Clypeus subquadrate, the breadth a little greater in the female, the length in the male; the sides somewhat rounded, both the upper and lower margins excavated. A slight carina between the antennæ. Mandibles slender, pointed, entirely unarmed in either sex. Apical joints of the male antennæ pitted beneath. Legs slender, the pulvillus small. Anterior tarsi of the female slightly dilated, the basal joints produced at the tip externally; ciliate externally with spines, which equal the fifth joint in length. Dorsal valve of the female without enclosure, pointed; dorsal valve of the male shorter and obtuse, depressed and not large. Eighth ventral segment of the male with only the tips of the spines prominent; claspers small and slender.

Smith (C. H. B. M. iv, 337, 1856) quotes *Stizus* from Latreille's Gen. Crust. et Ins. iv (1804), and states that *Stizus Hogardii* was Latreille's type, but erroneously, for it was in 1802 that Latreille, in his Hist. Nat. vol. iii, established the genus *Stizus*, and gave *bifasciatus* and *ruficornis* as species under it, without mentioning *Hogardii*. In 1805, Hist. Nat. vol. xiii, Latreille added *tridens* to the genus.

Klug, in the Symbolæ Physicæ, Insecta, vol. v (1829), without defining the genus, treats of species of *Stizus* under the generic name *Larra*, erroneously quoting Fabricius as the authority for the latter genus.

Smith also gives *Larra vespiformis* as the type of *this* genus; but that species is not mentioned by Latreille, and if it should prove to be generically distinct from *bifasciatus* would belong to a new genus. *Stizus unicinctus* Say is the American representative of *bifasciatus*. Some of the species here catalogued will require to be placed in distinct genera.

1. STIZUS UNICINCTUS.

Stizus unicinctus Say, West. Quart. Rep. ii, 77 (1823); Am. Ent. 4, pl. 2, f. 3 and 4, ♂ (1824).
Larra unicincta Cress., Proc. Ent. Soc. Phila. iv, 472 (1865).
Larra unicincta Pack., Proc. Ent. Soc. Phila. vi, 444, ♂ ♀ (1867).

Habitat: *Kansas, Colorado, Utah, New Mexico, Texas.*

2. STIZUS SERVILLII.

Bicyrtes Servillii Lepel., Hym. iii, 53, ♀ (1845).
Larra Servillii Smith, C. H. B. M. iv, 350 (1856).

Habitat: *Philadelphia.*

3. STIZUS MONEDULOIDES.

Larra moneduloides Smith, C. H. B. M. iv, 346, ♂ ♀ (1856).

Habitat: *Florida.*

4. STIZUS CINGULATUS.

Larra cingulata Smith, C. H. B. M. iv, 340, ♀ (1856).

Habitat: *Brazil.*

5. STIZUS DUBIUS.

Larra dubia Smith, C. H. B. M. iv, 343, ♂ (1856).

Habitat: *Villa Nova, Brazil.*

6. STIZUS AGILIS.

Larra agilis Smith, Ann. and Mag. Nat. Hist. (4), xii, 402 (1873).

Habitat: *Ega, Brazil.*

7. STIZUS BICINCTUS.

Larra bicincta Tasch., Zeit. ges. Nat. xlv, 364, ♀ (1875).

Habitat: *Mendoza, Argentine Republic.*

Art. XX.—List of a Collection of Aculeate Hymenoptera made by Mr. S. W. Williston in Northwestern Kansas.

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By W. H. Patton.

The collection here named is of interest, not only for the great rarity of several of the species, but for the exact information given in regard to locality and date. These latter points are too often neglected by collectors in the West. The species included in the main list were all taken within a few minutes' time from a patch of golden-rod in Northwestern Kansas, on the 8th of September, 1877.

SCOLIADÆ.

1. Myzine namea (Fabr.), ♂ ♀.

   Syn. ♀ *Meria collaris* Say.
   ♂ *Sapyga subulata* Say.

2. Myzine interrupta (Say) Smith, ♀.

   Syn. ♀ *Meria costata* Say.
   ♂ *Myzine hamata* Say.
   ♂ *Myzine menechma* Lepel.

3. Tiphia inornata (Say), ♀.

4. Paratiphia albilabris (Spin.), ♀.

   Syn. ♂ *Tiphia albilabris* Spin., Ann. Ent. Soc. France, x, p. 98 (1841).—Lepel., Hym. iii, p. 556 (1845).

♀, Length 8^{mm} to 9^{mm}. Black; mandibles, the tip excepted, anterior tarsi, claws of all the tarsi and tip of the abdomen rufo-piceous; edge of the clypeus and the flagellum beneath piceous; pubescence white, segments of the abdomen with a fringe of pubescence which is interrupted or narrowed on the disk of all the segments excepting the fifth. Body coarsely punctured, posterior margin of the collar and the tegulæ without punctures, punctures on disk of thorax and scutellum less numerous than elsewhere, sides of prothorax and metathorax longitudinally striate; upper face of the metathorax without punctures, finely rugose laterally, the triangular space enclosed by two carinæ and divided by a median longitudinal carina, the truncated posterior face of the metathorax slightly concave, finely granulated, bounded by a carina. Posterior femora with a slight angle near the middle of the lower edge.

Wings white-hyaline, nervures testaceous, stigma black. First segment of the abdomen squarely truncate, the truncation bounded by a carina and "suture," the base of the second segment with a transverse space, narrowed laterally, marked off by a slight carina.

From the ♀ of the Mexican *Paratiphia Sumichrasti* (*Epomidiopteron Sumichrasti* Sichel, Sauss. & Sich. Cat. Spec. Gen. Scolia, p. 267), this species differs in the color of the wings and pubescence, in that species the wings being tinted with ferruginons and the pubescence with red.

These ♀ specimens differ from the description of the Californian ♂ *albilabris* (the only sex described hitherto) in the *white*-hyaline wings, in the nervures and costa not being exactly "rufous," and in the clypeus not being white. But the white clypeus is a male sexual character of the genus; in *P. Sumichrasti* the color of the nervures varies, and in all the specimens of *albilabris* ♂ which I have seen the nervures and costa are black. Yet in specimens of *albilabris* ♂ the wings have not the white tinge which is apparent in these ♀ specimens.

In *albilabris* ♂ the metathorax has two small rectangular enclosures on the disk, and a transverse row of similar reticulations on the obliquely deflexed posterior border just above the carina, which limits the posterior truncation. The base of the mandibles is sometimes white. It differs from the ♂ of *Sumichrasti* in the posterior border of the first abdominal segment *not* extending over the second segment in the form of an angle so as to give the appearance of a "subcordiform suture."

The genus *Paratiphia* (Sichel in Sauss. & Sichel, Cat. Spec. Scolia, p. 269) differs from *Epomidiopteron* in the distinct stigma of the ♀ and the large stigma of the ♂, in the second submarginal cell being as large as the first, and in both the first and second receiving the recurrent nervures beyond the middle, in the unenlarged tegulæ, in the triangular form of the enclosure on the metathorax of the ♀, in the transverse carina on the sessile first segment of the abdomen, and in the second ventral segment not being tuberculate. It agrees with *Tiphia* in the distinct stigma, large second submarginal cell, and unenlarged tegulæ, but differs in the other characters in which it differs from *Epomidiopteron*, and also differs from *Tiphia* in the partial division of the first submarginal cell into two by an abbreviated vein descending from the marginal cell. In the presence of this vein it agrees with *Epomidiopteron*, but I find also a rudiment of the vein in some specimens of *Tiphia inornata* Say. The three genera agree in having the marginal cell open in the ♀ and closed in the ♂.

In *Paratiphia* the eyes are slightly sinuate within. The ♂ differs from the ♀ in the clypeus being white, in the mandibles being tridentate, the two inner teeth minute, in the sculpture of the metathorax, and in the dorsal valve having a median carina.

5. Scolia lecontei Cress., ♀

6. Scolia octo-maculata Say, ♀.

POMPILIDÆ.

7. PEPSIS CÆRULEA Linn., ♀.

8. CEROPALES TEXANA Cress., ♂.

These specimens agree well with the brief description of the species, but there is a fine white line on the posterior orbits, and the white spots at the base of the abdomen are on the first segment and not on the "second." This is probably the male of *nigripes* Cress.

9. POMPILUS ICHNEUMONIFORMIS n. sp., ♀.

Length 16mm. Elongate; pale ferruginous with yellow markings; face yellow, clypeal suture, space about ocelli, a line connecting it with the top of the eyes and a forked line (bounded by ferruginous) connecting it with the insertion of the antennæ, black; clypeus truncate, narrowly bordered with ferruginous, and with a quadrate ferruginous spot, broad posterior orbits yellow; antennæ ferruginous, scape yellow beneath, fifth and following joints black above; labrum cleft, the epipharynx shorter and concealed; mandibles short, and with a slight notch near the tip, yellow, the tip rufo-piceous. Margin of prothorax subangular; lateral and posterior margins of prothorax, four lines on mesothorax, the tegulæ, a spot on each side of the scutellum and a narrow posterior border of the scutellum, postscutellum and a spot on each side, large spot beneath the posterior wing, line beneath the anterior wing, large spot above the intermediate coxæ, broad band on the metathorax posteriorly, the elevated margin beyond (interrupted medially), and a dot on each side beneath, all pale yellow; sutures of the thorax, pectus, and coxæ within black; legs pale ferruginous, spots or stripes on the coxæ, tips of the four anterior femora, the tibiæ, and the tarsi yellow; the tibiæ beneath, the tips of the posterior pair, and the tips of the tarsal joints ferruginous. Claws of all the tarsi with a short tooth beneath, the claws of the anterior tarsi with the tooth a little beyond the middle, the other claws with the tooth at the middle. All the spines of the anterior tarsi much shorter than the second joint of the tarsus; first joint with five spines externally in addition to those at the tip, two of the spines situated lower than the others and a little smaller; second and third joints each with one spine in the middle. Wings as in *interruptus* (Say); yellowish varied with fuscous, the fuscous shade more distinct in a stripe beneath the marginal cell and in the second discoidal cell; marginal cell ovate-lanceolate, third submarginal cell much narrowed toward the marginal and smaller than the second submarginal cell; submedial cell of the posterior wings extending well beyond the medial cell on the externo-medial nervure. Abdomen with the extreme base of the first segment and the visible seventh dorsal segment* black; narrow borders

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*In *Pompilus* the sixth ventral is longer than the sixth dorsal, and there is present a membranous piece filling up the space thus left vacant; in *Agenia* the sixth ventral is also longer than the sixth dorsal, but the space is only partially filled by the piece of segments one, two, and three fuscous; broad bands at the base of segments one to four, narrowed in the middle, two spots at the base of the fifth segment, base of the first ventral segment, and spots on the second and third ventral segments yellow; the second to the fifth ventral segment stained with fuscous.

P. interruptus (Say) agrees in the structure of the feet and the form of the labrum and mandibles, but the mandibles have two short and blunt teeth near the apex. As the wings of the Kansas specimen are badly worn, it is probable that the teeth of the mandibles have been worn off also.

P. navus Cress. appears to be exactly intermediate in coloration between this species and *P. interruptus*. From *navus* this species differs in the much paler ground-color and the more extended yellow markings throughout, and in the absence of all black from the thorax, excepting the pectus and incisures. In the Southern States occurs another form resembling *interruptus* more in the markings, and *ichneumoniformis* in the ground-color. It is probable that the four will be united under one variable species.

10. POMPILUS WILLISTONI n. sp., ♀.

Length 21^{mm}. Dark ferruginous; wings fuscous, with a blue reflection, a large subapical spot on the anterior wings and the broad posterior borders of the posterior wings paler fuscous; costal and marginal cells and all the nervures of the anterior wings, except the apical ones, stained with yellow. Clypeus truncate at the apex. Labrum cleft in the middle, the epipharynx large and broad, extending beyond the labrum proper. Mandibles long, with two teeth on the inner border beyond the middle, the proximal tooth the smaller. The face yellow-ferruginous, a broad line above the median section of the clypeal suture, and a space enclosing the ocelli and connected with the insertion of the antennæ black, narrow posterior orbits yellow; mandibles yellowish, the tips black, antennæ black, the five basal joints ferruginous. Posterior margin of prothorax subangular; posterior border of prothorax, the tegulæ and a line above, the postscutellum, angles of metathorax, tips of femora, stripe on tibiæ, and the tarsi dull yellow; tibiæ and tips of tarsal joints fulvous; prothorax anteriorly and the anterior border of the mesothorax, sutures of the thorax, the pectus, the coxæ, trochanters and base of femora (extending into a stripe on the posterior pair) black. Claws of the four posterior tarsi with a simple median tooth; claws of the anterior tarsi with a stout truncated tooth beyond the

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which I regard as a part of the seventh dorsal segment. These are the only instances in which an external seventh segment has been recognized in the ♀ of the Aculeate Hymenoptera. In *Priocnemis* the sixth dorsal segment is produced and as long as sixth ventral, which it completely covers. Since the above left my hands I have found this seventh dorsal segment of the ♀ externally apparent in *Pelopœus*, *Priononyx*, *Harpactopus*, and *Ammophila*, and its edge apparent in *Chalybion*, *Chlorion*, *Isodontia*, and *Sphex*—*i. e.*, in all the typical Sphecidæ—, being in each case closely appressed to the sixth ventral segment and forming the real dorsal valve.

middle, forwardly directed, and giving to the claws the appearance of being cleft. Anterior tarsi armed with eight stout spines, each spine as long as the second joint of the tarsus, the spines arranged one at the tip of each of the four basal joints, two additional ones on the first joint, and one each on the middle of the second and third joints. Marginal cell ovate-lanceolate; third submarginal cell a little larger than the second, narrowed one-half towards the marginal; submedial cell of posterior wings extending well beyond the medial cell on the externo-medial nervure. Abdomen with obscure spots on base of the second segment and broad bands at the base of segments three to five, deeply emarginate posteriorly, dull yellow. Extreme base and the apical margin of the first segment black.

A second specimen, length 18^{mm}, is much paler in color and the wings are yellowish-fuscous with darker borders and longitudinal stripe; the clypeal suture only is black, there is no black line between the ocelli and antennæ, and there are yellow spots on the prothorax anteriorly and on the scutellum; the coxæ and thorax, excepting a spot on the pectus and some of the sutures, are without black markings, and the yellow markings on the abdomen are more distinct.

This species agrees in the structure of head and tarsi and in the venation of wings with *P. algidus* Smith and may be the Western form of that species, but the wings are much paler and the coloring throughout is much paler. In *algidus* the third submarginal cell is no longer than the second in the specimens compared.

SPHECIDÆ.

11. AMMOPHILA PROCERA Dahlb., ♀.

Syn. *Ammophila gryphus* Smith.

12. AMMOPHILA INTERCEPTA Lepel., ♀.

Syn. *Ammophila procera* Lepel. (nec Dahlb.).

13. AMMOPHILA ABERTI Hald., Stans. Salt Lake Ex. p. 368 (1852).

Four female specimens agreeing with Haldeman's description recover this species to science. Haldeman's single specimen had neither head nor anterior wings. The wings are yellowish hyaline with rufo-testaceous nervures. The head is black, with thin white pubescence on cheeks and mandibles; the face about antennæ and the cheeks silvery; the margin of clypeus and middle of mandibles ferruginous. The punctures on the head are very slight, those on the clypeus larger; the clypeus arcuately produced, subtruncate anteriorly; mandibles with two teeth on the inner border, the proximal tooth small (mandibles similar to those of *A. violaceipennis*, but stouter); labrum elongate, the length to the breadth as three to two, the anterior border angular. Prothorax with a notch above; mesothorax with a median groove, an impressed line above the tegulæ anteriorly, a longitudinal depression on each side posteriorly, mesothorax finely punctured, the scutellum more densely punctured; enclosure of metathorax sharply and densely striate obliquely. First and fifth joints of the posterior tarsi shaded with black. First segment of the abdomen more or less black above, sometimes a black line on the base of the second segment above; the fourth and fifth segments vary from entirely black to red with a black spot above.

14. Priononyx atrata (Lepel.) Sm., ♂ ♀.

15. Harpactopus rufiventris (Cress.), ♀.

Syn. *Sphex rufiventris* Cress., Tr. Am. Ent. Soc. iv, p. 211.

In this specimen, one of the spiracles of the first segment of the abdomen is situated upon a protuberance. The claws of the tarsi are rufo-piceous, except at the base.

The males described below appear to be the *Sphex abdominalis* Cress. (from which they differ only in the abdomen being entirely black), and are regarded by me as the male of *H. rufiventris*, with which they agree in all points of sculpture. Length five-eighths to six-eighths of an inch. Black; mandibles near the tip and the margin of the tegulæ piceous; wings violaceous, fuscous, the apical border darker, claws of the tarsi rufo-piceous except at the base; margins of the abdominal segments dull piceous. Vertex very delicately and closely punctured, with shallow punctures of larger size intermixed; ocelli enclosed by a delicate impressed line, the anterior ocellus enclosed in a slight depression, from which three lines (or one line) extend anteriorly, and one line extends to the enclosing line posteriorly. Pronotum and mesonotum delicately roughened, the latter with two slight longitudinal ridges anteriorly enclosing a narrow smooth area; metathorax delicately striate transversely. Abdomen very slightly and sparsely punctured, petiole a little longer than the posterior coxæ. The fourth and fifth ventral segments are clothed with a fine brownish pile, which is visible only when viewed from the side or in front. In another specimen, the two basal joints of the antennæ and a broad band on the vertex behind the ocelli are dull ferruginous, and the second segment of the abdomen has a piceous tinge.

Harpactopus lævivenitris (*Sphex lævivenitris* Cress., Proc. Ent. Soc. Phila. iv, p. 463) differs from the other species (according to the description) in the thorax being smooth above and the face of the male being adorned with silvery pile.

16. Sphex ichneumonea Linn., ♂ ♀.

CRABRONIDÆ.

Larrites.

17. Larra æthiops (Cress.), ♂.

More coarsely and closely punctured than the typical form from Colorado. The clypeus is closely punctured and opake, the metathorax transversely rugose, and the abdomen distinctly punctured. The median portion of the clypeus, in the male, is produced, its margin rounded, not dentate; the mandibles are not dentate within, or have two or three minute notches. The margins of several segments of the abdomen have a silvery reflection at the sides.

18. TACHYTES CÆLEBS n. sp., ♂.

Length 10.5mm. Black; the head, thorax, legs, and base of the abdomen clothed with white or silvery pubescence, particularly brilliant on the face. A slight pit behind the ocelli, from which an impressed line extends upon the vertex; median portion of the clypeus produced, the process glabrous, margined with an impressed line, the apex broadly truncate, a slight notch at the base of the process on each side; labrum concealed, its tip transverse and entire, as in *abdominalis* ♀, where the tip is exposed; mandibles bidentate within, the distal tooth the smaller; third and fourth joints of the antennæ narrowed at the base and widened at the apex, the eleventh and several preceding joints dilated posteriorly, the twelfth and thirteenth joints not at all dilated. Thorax and abdomen microscopically punctured; metathorax subtruncate, a small pit at the apex above the truncation, and an elongated depression beneath the truncation. Apical joints of the tarsi ferruginous. Wings hyaline, the tegulæ and nervures honey-yellow. Two basal segments of the abdomen red; margins of the four basal segments silvery; apical segment with no enclosure, silvery. Venter with scattered punctures; the eighth segment slightly narrowed towards the broadly sinuate apex.

This is probably the ♂ of *abdominalis* Say, although Mr. Cresson has suggested that his *T. rufo-fasciata* may occupy that position.

PHILANTHINÆ.

19. PHILANTHUS VENTILABRIS Fabr. var. FRONTALIS Cress., ♂.

Syn. *Philanthus frontalis* Cress.

This specimen has no yellow spot on the mandibles, and there are two or three black dots in a line, just above the antennæ, separating the frontal spot from the yellow face.

20. PHILANTHUS INVERSUS n. sp., ♀.

Length 12mm. Pale greenish-yellow; head, thorax, and first segment of the abdomen with a loose white pubescence; face finely punctured, vertex more coarsely and confluently punctured; thorax densely punctured, the punctures on disk of mesothorax and scutellum less numerous, sides of the enclosure of metathorax impunctured and polished; abdomen coarsely punctured, the punctures less numerous towards the apex and beneath. Narrow anterior borders of the clypeus and the lateral borders of the upper lobe, spot on disk of clypeus, spot on each side of the face lower than the antennæ, a zigzag line above the antennæ connected with their base, and in one specimen connected also with the lateral spot, space about ocelli connected on each side with the top of the eye, a stripe extending obliquely backward from the top of the eye and reaching the occiput in the median line of the posterior border of the vertex, and the occiput, all black; in one specimen the vertex is black with two oblique yellow stripes behind the ocelli, and is bordered on each side posteriorly by the yellow orbital stripes; tips of mandibles piceous; antennæ black above, fulvous beneath, the scape yellow beneath. Sutures of the thorax more or less broadly, prothorax anteriorly, three broad stripes on the mesothorax connected both anteriorly and posteriorly, spot on each side of the mesopectus, borders of the scutellum (and in one specimen the scutellum, excepting two yellow spots, and an interruption of the band on the postscutellum), a triangular basal spot on the enclosure of the metathorax (extending posteriorly in one specimen along the median line to the base of the abdomen), base of the coxæ and the anterior coxæ beneath, trochanters more or less, stripe beneath all the femora and the intermediate tibiæ, stripe on the four anterior tibiæ above and on the femora above but abbreviated on the anterior and posterior pairs, all black; anterior tarsi with spatuliform bristles, posterior tibiæ serrato-spinose. Large spot on anterior face of the first segment of the abdomen produced into a point posteriorly, narrow basal margins of the segments more or less produced into a tooth on the disk, small spot on each side of the second ventral segment, and in one specimen a spot on each side of the basal dorsal segment posteriorly, black; narrow apical borders of the abdominal segments depressed and polished, segments slightly constricted; the basal segment little narrower than the succeeding ones, transverse, subtruncate anteriorly. Wings subhyaline, nervures and stigma testaceous; submedial cell of the posterior wings extending slightly beyond the medial cell on the externomedial nervure.

In the form of the basal segment of the abdomen and in the puncturing of the abdomen this species resembles *P. ventilabris* Fabr., but in the sculpture of the thorax it resembles *P. flavifrons* Cress.; in coloration it is very distinct from any other species.

21. EUCERCERIS SUPERBUS Cress., ♂.

In this specimen the spot above and between the antennæ is connected with the yellow face below, and the second ventral segment is mostly yellow; the coxæ are black above, and the tubercles are black with ferruginous borders; a spot on the postscutellum, the apical margins of the first, second, third, and sixth segments of the abdomen, and the entire seventh segment are ferruginous; the third and fourth ventral segments and the apical border of the fifth and sixth ventral segments are fulvous. The clypeus is three-toothed at the apex, the median tooth the longest; the lateral lobes of the clypeus are distinctly separated from the eyes; there is a triangular smooth spot above the intermediate coxæ; the third, fourth, and fifth ventral segments have a subapical erect fringe of long curved bristles; the eighth ventral segment is narrowed towards the apex, extends slightly beyond the seventh dorsal, and is emarginate at the tip.

In the ♂ of *E. superbus* and *E. canaliculatus* the clypeus is well separated from the eyes, and the median lobe has the central tooth longest; in the ♂ of *E. fulvipes* and *E. cingulatus* the side lobes almost touch the eyes and the median tooth does not extend beyond the others; but in the form of the tip of the abdomen *E. superbus* ♂ stands alone and the three others agree.

There are three distinct sections in the genus *Eucerceris* represented by *zonatus*, *canaliculatus*, and *fulvipes*. To the first belong also *superbus* and *laticeps*.

22. EUCERCERIS LATICEPS Cress., ♀.

This specimen differs from the description of the ♀ from Massachusetts in the following particulars: there is no whitish line on the collar, the yellow spots on the sides of the second segment of the abdomen are each connected internally with a smaller brown spot, the apical segment is entirely black.

In this species, the clypeus is very short and broad, and apparently borders the eyes for a considerable distance above the base of the mandibles; there is no suture marking off the side lobes of the clypeus, but the foveæ are as in *Philanthus;* the median lobe is triangularly produced subapically into a flat obtuse tooth with a depressed margin; the margin of the clypeus on each side of the tooth is broadly bisinuate, the angle between the sinuses being situated beneath the foveæ; beneath the tooth of the median lobe is a tuft of a few bristles. The labrum is slightly rounded anteriorly and has the anterior border sinuate. There is a triangular smooth spot above the intermediate coxæ; the mesopleura have a prominent angle beneath, and behind this angle a less prominent one. The tip of the sixth ventral segment is deeply bilobed at the apex, the sting appearing between the lobes.

23. EUCERCERIS CANALICULATUS (Say) Cress., ♂ ♀.

Syn. ♀ *Cerceris bidentata* Say, West. Quart. Rep. ii, 80 (1823).
♂ *Philanthus canaliculatus* Say, West. Quart. Rep. ii, 79 (1823), and Am. Ent., p. 111, pl. 49, fig. 1 (1828).
♂ *Eucerceris canaliculatus* Cress., Proc. Ent. Soc. Phila. v, 112 (1865).

In this species the body is densely punctured, the punctures tending to form striæ upon face, sides of prothorax, and sides of metathorax; on the disk of the prothorax and the mesothorax and on the abdomen the punctures are usually less dense, and on the highly polished scutellum and postscutellum they are sparse; the enclosure at base of metathorax is highly polished, and, except at apex, transversely striate, the apex smooth; on the venter the punctures are slight, and tend to produce rugæ, and segments three to five (♀) or six (♂) have a slight median longitudinal groove; dorsal segments two to five have a transverse, finely and closely punctured median depression. There is a triangular smooth spot above the intermediate coxæ, and in the ♀ the mesopleura are slightly angulated beneath. The antennæ are similar in the two sexes.—In the ♀ the lateral lobes of the clypeus almost touch the eyes; these lobes are bounded above by an evenly arched suture, and the median lobe extends no higher upon the face than the lateral lobes; the median lobe is depressed, and is terminated by three teeth, the central tooth minute and having a small tuft of bristles just above it; from the upper portion of each of the lateral lobes arises a large and blunt conical tubercle, which in some specimens is slightly curved downwards. The labrum is slightly narrowed anteriorly, and the anterior border is deeply and broadly emarginate. The mandibles are stout and armed with a short, broad tooth near the apex. The sixth ventral segment is deeply cleft at the apex, so as to form two flat, parallel, black lobes, between which the sting is protruded.—In the ♂ the lateral lobes of the clypeus are much narrower, distinctly separated from the eyes, do not extend as high as the median lobe, and are bounded above by an arched suture, with the outer side of the arch much longer than the inner; the median lobe has three teeth at the apex, the central tooth the longest; the mandibles are more slender and without teeth; the labrum is a narrow, curved band, concealed under the clypeus. The carinæ bounding enclosure on seventh segment of the abdomen terminate in projecting teeth, and between them extends a process from the eighth ventral segment, bearing two similar teeth at its apex; the third and fourth ventral segments bear an apical fringe of long, curved bristles, and the apical margin of the fifth ventral segment has a row of short, evenly cut bristles, which are so numerous and closely appressed as to have the appearance of a rigid chitinous plate. This fringe on the fifth ventral segment is probably of the same nature as the "waxed moustache" on the clypeus of ♂ *Cerceris*.

These specimens show considerable variation in the markings. The head behind the eyes varies from dark ferruginous to yellow, the vertex from dark ferruginous to honey-yellow with two pale yellow spots; in many of the males there is a transverse black band between the summits of the eyes, including the ocelli, and in some specimens connected by slender black lines with the base of antennæ, and also connected with a short black line on the anterior orbit; in other specimens the yellow of the face is continued upwards to include the ocelli, and the vertical stripes at the base of antennæ are short and ferruginous; the mesoscutum varies from dark ferruginous with a yellow lateral border to reddish-yellow, in some specimens there being two median stripes of yellow; in some males the anterior and posterior borders of the mesoscutum are black, the black of the anterior border extending upon the disk in the form of three stripes; the sutures of the thorax vary from black to ferruginous; the metathorax in all the specimens is entirely or almost entirely yellow; the legs vary from ferruginous to honey-yellow and to pale yellow; the amount of ferruginous on the sutures of the abdomen varies, the transverse depressions on segments two to five in some specimens are not marked with ferruginous; the apical segment is mostly ferruginous, as are also several segments of the venter. The length varies from 11^{mm} to 17^{mm}.

Since 1820, when Thomas Say, while on Major Long's Expedition to the Rocky Mountains, captured one male and one female specimen which he described as distinct species under different genera, this species has remained unrecovered. In establishing a new genus for the reception of those species in which the venation of the male resembles *Philanthus* and the venation of the female resembles *Cerceris*, Mr. Cresson in 1865, relying on Say's description, referred *P. canaliculatus* to *Eucerceris*, while he left *C. bidentata* in *Cerceris*, not suspecting that they were the sexes of one species. The fine series collected by Mr. Williston enables me to unite them. The ♀ may be at once distinguished from all other wasps by the conical protuberance *on the lateral lobes* of the clypeus.

24. EUCERCERIS UNICORNIS n. sp., ♀.

Side lobes of the clypeus not separated from the median lobe by a suture, but bounded above by an evenly arched suture, extending from the foveæ to the eyes, the sides of the clypeus touching the eyes. Anterior margin of the clypeus armed with two remote teeth, between which is a broad process equalling the teeth in length and having its border sinuate and its sides thickened; above the process is a thin fringe of bristles arising from a ridge at the base of a stout conical tubercle. This tubercle arises from the basal portion of the median lobe of the clypeus, and is of the same form and size as the tubercles arising from the side lobes of the clypeus in the ♀ of *E. canaliculatus*. The mandibles have a stout but short tooth on the middle of the inner margin. The labrum is narrowed anteriorly, and has its anterior border broadly emarginate. The sixth ventral segment has two slightly divergent lobes at the tip, the sting protruding between the lobes. The area on the sixth dorsal segment narrower than in *E. canaliculatus* and *E. laticeps*.—Black; the head ferruginous, tips of the mandibles, apical half of the antennæ and two stripes passing through the bases of the antennæ and uniting in a spot enclosing the ocelli black; posterior margin of collar and the postscutellum yellow; tubercles, tegulæ, legs, and elongate spots on the sides of the metathorax ferruginous. Head and disk of thorax deeply and sparsely punctured; the side of thorax and the metathorax densely punctured, the punctures running into striæ; the area above intermediate coxæ finely striate, leaving no smooth triangle; pectus sparsely punctured; mesopleura unarmed; enclosure at the base of the metathorax polished, divided by a median groove, irregularly rugose transversely; abdomen deeply and sparsely punctured above, the transverse impressions on the second, third, and fourth segments closely and finely punctured; a longitudinal median groove on the raised portion of the ventral segments. Yellow fasciæ on all the abdominal segments except the last, the fascia on the first segment notched on the disk, the others much dilated at the sides, those on the second, third, and fourth segments abruptly so; narrow anterior margin of the fascia on the first segment, the extreme sides and the venter of the first and second segments, and the apical margins of the other ventral segments ferruginous. Wings hyaline, the marginal and submarginal cells occupied by a smoky stripe, which is darker and violaceous beyond the stigma, the costa and stigma yellow. Length 11^{mm}.

In a larger specimen (length 14^{mm}) the ferruginous color is more extended and of a fulvous tint; on the face there are only a small spot enclosing ocelli and short stripes at the base of antennæ remaining black; the collar, tubercles, three spots beneath the wings, two spots on scutellum, the sides of the metathorax almost entirely, the posterior margin of the metathorax, and the legs are ferruginous; three fine lines on collar, a dot on the tubercles, a line on the scutellum, and a dot on each side of the metathorax posteriorly are yellow. The transverse impression on the second segment of the abdomen is punctured similarly to the other portions of the segment, the punctures on the vertex and on disk of thorax are more sparse. The three anterior fasciæ of the abdomen are broadly bordered with ferruginous, and the apical segment and the venter are entirely ferruginous.

From *E. fulvipes* Cress., this species differs in being larger, in having ferruginous markings, in the vertex being more sparsely punctured, and the enclosure of metathorax being less closely striate. The margin of the clypeus has two teeth and a median process, and the upper portion of the median lobe has a stout conical protuberance. In *E. fulvipes*, the median lobe of the clypeus is flat or slightly convex, and the anterior margin is armed with four distinct teeth of equal size. In other respects the species are much alike.

In the ♂ of *E. fulvipes* the side lobes of the clypeus are separated from the median lobe by a short suture, the suture above the lobes is oblique and the clypeus does not touch the eyes; the middle of the anterior margin has three short teeth, of which the central one is the smallest. The fifth ventral segment has a marginal fringe of long curved bristles; the eighth ventral segment is produced beyond the seventh dorsal and its narrowed tip is terminated by two teeth; the limiting carinæ of the dorsal area are prolonged into divergent teeth.

25. CERCERIS FULVIPES Cress., ♀.

Differs from eastern specimens only in the more developed yellow markings. It may be a variety of the *C. occipitomaculata* Pack., for that species, although it is said to be closely allied to *C. nigrescens*, is described as having the clypeus depressed. In this specimen there is a yellow spot on disk of clypeus, and none on scape of antennæ or on interantennal ridge; the legs are fulvous, the coxæ more or less, and a stripe on anterior femora within are black; a spot on posterior coxæ above, the four anterior femora beneath, and the four anterior tibiæ in front are yellow; the ventral segments are tinged with ferruginous, and segments two to five have a large yellow spot on each side beneath. The mandibles have a blunt tooth beyond the middle and a smaller tooth before the middle; the anterior margin of the clypeus is armed with five teeth, the exterior teeth smallest; the apical ventral segment is apparently emarginate at the tip.

In *C. nigrescens* Smith, the mandibles have two small and sharp teeth, both before the middle; the anterior margin of the clypeus is armed with four teeth, the median teeth placed on a lower plane than the others; the apical ventral segment is deeply lobed at tip; and the clypeus is armed with a quadrate process arising from its base.

26. CERCERIS SEXTA Say, ♂.

In one large specimen there are no black markings upon the femora. In a small specimen, the flagellum, excepting basal joint, is black, the legs are pale yellow, with the coxæ and four anterior trochanters more or less black; the four anterior femora behind, a broad ring near tip of posterior femora, and an external and internal stripe on posterior tibiæ are black; the tips of posterior femora, their tibiæ above, and the basal joint of their tarsi are honey-yellow, and the apical joints of posterior tarsi above are fuscous.

The clypeus of this species has three short blunt teeth at the apex, the central tooth broader than the others; the mandibles are slightly sinuate on the inner margin, and slightly angulated exteriorly. The terminal joint of the antenna is curved, and, like the preceding joints, ridged and excavated within with sensitive pits.

BEMBECIDÆ.

Stizini.

27. STIZUS UNICINCTUS Say, ♀.

One of the specimens is peculiar for having on the disk of the labrum a depression in the form of a large oval pit; probably the result of an injury.

Bembecini.

28. MONEDULA SPECIOSA Cress., ♂ ♀.

Syn. *Monedula formosa* Cress.

The ♀ specimens have a spot on the scape of the antennæ above, the bases of the coxæ and trochanters, and a line on coxæ and femora above, black. The spot about the ocelli is not connected with the yellow of the face, and the spots on the venter are connected on the second segment only.

The ♂ differs greatly from the ♀. The face is narrower, the apical joint of the four anterior tarsi is dilated and flattened, the three preceding joints are small and compressed, and their spines are obsolete, the intermediate femora are serrulate beneath nearly to the base, the first joint of the intermediate tarsi is much arcuated and excavated beneath, and has a longitudinal row of three or four stout spines near the base; the abdomen is slightly pubescent, the disk of the second ventral segment has a tubercle on each side of the median line, the lateral margins of the seventh dorsal segment are fringed with short stout spines towards the base, the seventh and eighth ventral segments are clothed with long pubescence; the three terminal spines are large, the median spine compressed and slightly curved downward, the lateral spines flattened and slightly hooked.

The ♂ is black; the labrum, mandibles, except the tip, the sides of face and connected spot between antennæ, an irregular line beneath the ocelli, sometimes interrupted, the scape of the antennæ, excepting a spot above, the second and third joints of the antennæ beneath, the posterior orbits, the prothorax, excepting a spot in front and a line each side, a large spot on each side of the pleura beneath, the tubercles and a line behind them, the tegulæ and a line above them, a line on the scutellum, another on the postscutellum, a spot above the intermediate coxæ, the angles of the metathorax, an angulated line on the disk of the metathorax, a large spot on each side of the first segment of the abdomen, four spots on the second segment, sometimes connected, narrow irregular fasciæ on segments three to six, the tip of the seventh segment, a fascia on the first ventral segment, and spots on three or four of the following segments, all yellow or yellowish-white. The legs are colored as in the female, excepting that the terminal joint of the four anterior tarsi is black, strongly contrasting with the preceding joints.

29. MONEDULA VENTRALIS Say, ♂ ♀.

30. BEMBEX SAYI Cress., ♀.

All the coxæ are yellow externally, and all the tibiæ have a black spot or stripe internally; there is a black dot on the four anterior knees, and two black dots on the posterior knees. In one of the specimens the fascia on the third segment of the abdomen encloses two black spots similar to those on the second segment.

This is *not* Say's variety of *fasciata;* the ♀ of the latter has been described under the name of *texana* Cress., and is a distinct species.

31. MICROBEMBEX MONODONTA (Say), ♀.

Syn. *Bembex monodonta* Say.

The ♀ of this widely distributed species has never been described; a Connecticut specimen presents the following characters:

Black; the face with a dense silvery pile, the vertex with long silvery pubescence, thorax and abdomen with a microscopic silvery pubescence, which is more dense on the sides. Base of the mandibles, sides of the labrum, line on posterior orbits, line on collar connected with the tubercles, line behind tubercles, the tegulæ and a line above, the costa of wing, a large spot on each side of the scutellum shaped like a comma, line on postscutellum, an arcuated almost interrupted line bordering the upper face of the metathorax posteriorly, the tips of the femora, the tibiæ (excepting a line within, and, on the anterior pair, an exterior line connected with the inner line posteriorly), the base of the four posterior tarsi, a band occupying the posterior half of all the dorsal abdominal segments excepting the last, two spots on the last dorsal segment, and a dot on each side of the second and third ventral segments at the tip, all yellow. On the mandibles, collar, and tibiæ, the yellow is whitish, on the abdomen it is pale and greenish. The tarsi are testaceous, the terminal joint of the four posterior darker, the ciliation of the anterior pair black. The wings are hyaline, with a faint smoky cloud across the middle, the nervures fuscous. The bands on the abdomen are notched on the disk, and all but that on the first segment are slightly sinuate on each side. Clypeus elevated, its anterior margin distinctly sinuated (much more so than in *B. fasciata*), the anterior border of the clypeus (more broadly in the middle) free from pubescence, and highly polished. The marginal and third submarginal cells separated by a sinus as deep as that in *Monedula.* Anterior tarsi dilated externally, and fringed with long flattened spines. Abdomen finely punctured, the sixth segment more coarsely punctured, the sides of the sixth segment denticulated, its apex with a sharp notch. Length 11^{mm}.

The specimens from Kansas all differ in having the wings hyaline (or with the slightest trace of a cloud), the nervures paler, the metathorax with a yellow stripe on each lateral angle, and the apical segment of the abdomen immaculate. In one specimen, the markings have a deeper yellow tint. In most of the specimens, the silvery pubescence is more conspicuous, and the yellow markings are more developed. The specimen presenting the greatest difference has the clypeus, a line on scape of antennæ, most of prothorax, broad lateral margins, and two longitudinal discal stripes (shaped like the tooth of a Dinosaur) of the mesoscutum, large spot on side of mesothorax, spot above intermediate coxæ, scutellum except median line, upper surface of metathorax except spot at base, broad lateral angles of metathorax, upper surface of the first segment of abdomen except a notch on anterior middle, and broader abdominal bands, yellow; the bands of the second and third segments of the abdomen with a broad rectangular notch on each side anteriorly.

A specimen of the *male* from Northern Illinois (Mr. E. J. Lake) differs from Say's description in the following respects: there is scarcely any green tinge in the yellow markings, and the bands on the abdomen are entirely yellow and cover nearly the whole surface excepting the black seventh segment; the tubercles, a small transverse spot behind them, a dot on the tegulæ, an indistinct yellow line on each side of the metathorax at the tip, and a small spot on each side of the second and third ventral segments are yellow; the anterior tibiæ have a short black line above as well as beneath, and the arcuated yellow line on the metathorax is situated as in the female. The mandibles are black, the head is more pubescent than in the female, and the marginal and third submarginal cells are not quite so widely separated as in the female.

There are three genera of *Bembecidæ* with short palpi. They are:

BEMBEX.—Labrum twice as long as broad; mandibles armed with a tooth; maxillary palpi three- or four-jointed, the fourth joint variable in size and sometimes obsolete; the maxillæ when folded concealed by the labrum; labial palpi represented by a free clavate joint; no sinus between the marginal and third submarginal cells; apex of the abdomen entire.

MICROBEMBEX n. g.—Labrum twice as long as broad; mandibles slender, unarmed; maxillary palpi four-jointed; the maxillæ when folded concealed by the labrum; labial palpi obsolete; a distinct sinus between the marginal and third submarginal cells, second submarginal cell much narrowed towards the marginal, its inner side straight; apex of the abdomen notched in the female.

In addition to the type, *monodonta*, two Cuban forms (*argentifrons* Cress. and *armata* Cress.) belong to this genus. They appear to be varieties of *monodonta*.

STENIOLIA Say.—Labrum not twice as long as broad, the base swollen, the apex broadly truncate; mandibles armed with a tooth; maxillary palpi three-jointed; the maxillæ when folded extending beyond the mesothorax; labial palpi represented by a free cylindrical joint as long as the first joint of the maxillary palpi and which may consist of two joints united; a distinct sinus between the marginal and third submarginal cells, the second submarginal cell not narrowed towards the marginal; apex of the abdomen entire in the female.

In addition to the type, *Steniolia longirostra* (*Bembex longirostra* Say), this genus contains *Steniolia obliqua* (*Monedula obliqua* Cress., Proc. Ent. Soc. Phila. iv, p. 469).

EUMENIDÆ.

32. EUMENES BOLLII Cress., ♂.

33. ODYNERUS VAGUS Sauss., ♂.

34. ODYNERUS ANNULATUS Say, ♂.

35. PTEROCHILUS QUINQUE-FASCIATUS Say, ♂ ♀.

The male is similar to the female. Specimens occur having the mesoscutum marked with ferruginous.

VESPIDÆ.

36. POLISTES AURIFER Sauss., ♂.

37. POLISTES VARIATUS Cress., ♂ ♀.

ANTHOPHILA.

38. COLLETES ARMATA Patton, ♂.

Length 9mm. Black; the pubescence white; space between eye and mandible less than the width of the eye; labrum with a central enclosed pit and two or three less distinct pits on each side of it; clypeus confluently punctured, at the apex polished, and with irregular scattered punctures; vertex densely punctured, opake. Prothoracic spine prominent, mesothorax deeply punctured, the disk shining and more sparsely punctured, anteriorly a faintly impressed median line free from punctures. Base of the metathorax with a transverse series of regular reticulations, the posterior face coarsely and irregularly reticulated, shining. Calcaria testaceous, apical joints of tarsi rufo-piceous, the tips of the joints with golden pubescence. Wings hyaline, the nervures testaceous, postcostal nervure black, second submarginal cell narrowed more than one-half towards the marginal cell. Abdomen polished, densely and finely punctured, the base of first segment without punctures; first segment thinly pubescent, the remaining segments with short scattered pubescence and all the segments except the last with an even apical fascia of appressed pubescence; the fasciæ on the ventral segments uninterrupted.

Agrees very closely in all respects with the male of *C. armata* from Connecticut, but it may be readily distinguished by the form of the second submarginal cell and the color of the wing-nervures. The difference in the form of the submarginal cell, however, is likely to be a sport, as differences in the venation, although presenting good generic characters, are rarely available for the separation of species. In *C. consors* Cress., the second submarginal cell varies in form.

39. AUGOCHLORA HUMERALIS n. sp., ♂ ♀.

♀, Length 8mm to 10mm. Golden or blue green; thinly clothed with white pubescence; head very closely and finely punctured, with large deep punctures on the clypeus; flagellum beneath, anterior margin of clypeus, the labrum, and mandibles dark rufo-piceous. Pubescence on the thorax more dense behind the tubercles, behind the wings, and between the scutellum and postscutellum; thorax closely punctured, the punctures on the sides of the disk very fine and on the sides of the metathorax more shallow; angles of prothorax very sharp and prominent, connected with the prominent tubercles by a sharp sinuous ridge; base of metathorax finely roughened or granulated, not distinctly enclosed; posterior truncation shining, very sparsely punctured, median groove deep, lateral ridges sharp. Legs golden-green, black beneath; tarsi and posterior tibiæ piceous, sometimes with a testaceous or a blue tinge; posterior legs with a dense pale pubescence. Wings hyaline, nervures and stigma testaceous, tegulæ with a smooth piceous spot. Abdomen covered with very close and fine punctures of different sizes, the margins of the two basal segments fringed with short pale pubescence, fourth segment sometimes of a deeper blue than the preceding segments; venter piceous, sometimes with a blue tinge, the margins of the segments testaceous.

♂, Length 9^{mm} to 10^{mm}. Blue-green, face golden-green, apical segments of the abdomen darker and with a beautiful violet reflection, venter blue. Tegulæ with a smooth black spot; metathorax more closely punctured; legs green, with a thin, pale pubescence; tarsi dark piceous.

Some male specimens have the first recurrent nervure received within the third submarginal cell. The same variation occurs in the females of *Augochlora pura* (Say).

Allied to *A. fervida* Smith. Differs from all species known to me in the very prominent angles of the prothorax, the sharp ridge connecting these angles with the tubercles being sinuous. The Texan species which has been mistaken for *A. lucidula* Smith agrees in most respects with *A. humeralis*, but the angles of the prothorax are not so sharp. The species may vary in this character. *Augochlora lucidula* Smith, occurring in Connecticut, has the abdomen more sparsely punctured, is smaller, and is the female of *A. viridula* Smith.

40. NOMIA NORTONI Cress., ♂.

Syn. *Nomia Cressoni* Westw., Tr. Ent. Soc. Lond. 1875, p. 218, pl. v, fig. 3.

On the posterior tibiæ I can discover only *two* spines, the usual number in Hymenoptera, although Mr. Cresson, in the description of the species, states that there are "three." The chitinous ridge connecting one of the spines with the base of the tarsus may have been mistaken for the third. Between the spines there is an oval transparent spot. The error in regard to the spines misled Westwood, and caused him to give a new name to the species. The broad plates on the venter belong to the third and fourth segments, and not to the "second and third," as stated by both Cresson and Westwood.

41. HALICTUS OCCIDENTALIS Cress., ♂ ♀.

42. CALLIOPSIS COLORADENSIS Cress., ♀.

43. EPEOLUS OCCIDENTALIS Cress., ♂ ♀.

The seventh ventral segment of the male, retracted in most specimens, is slightly emarginate at the apex and armed with a tooth on each side at the base. Small specimens (male and female, length 9^{mm}) have the legs more or less black.

44. NOMADA TEXANA Cress., ♂.

45. ANTHOPHORA ———.

♀, Length 15^{mm}; breadth of abdomen 6.3^{mm}. Black; the head, thorax, and basal segment of the abdomen clothed with dense pale pubescence, the pubescence on disk of clypeus fuscous, and that on thorax above ochraceous. The base of the mandibles touches the eyes. Labrum with coarse confluent punctures, the apex smooth and with two slight elevations, one on each side of the median line. Clypeus densely and strongly punctured, with no median smooth line, the margin with an impressed line. Thorax and abdomen opake, impunctured. Anterior femora beneath, and the intermediate tibiæ and the basal joint of their tarsi above, with pale pubescence. The scopa upon posterior tibiæ and base of first tarsal joint white externally. Tarsal claws ferruginous at the base. Wings hyaline, the nervures and tegulæ dark piceous. Apical margins of the four basal segments of the abdomen milk-white; the margin of first segment narrow, that of the three following segments broad and slightly sinuate on each side anteriorly. Segments two to five with a thin black pubescence, which becomes white at the sides and is very short on segments two and three. Venter shining, the segments punctured and set with black pubescence.

The large size and the white margins of the abdominal segments readily distinguish this from all described species, except *Smithii* Cress. and *Walshii* Cress. The females of *Smithii* and *Walshii* are not described in such a manner as to be independently recognizable, but are said to have white bands upon all the segments "except the last." If this statement is correct, the present species differs in having no white margin on the fifth segment. But, as Mr. Cresson has in other instances described the fifth segment as "the last," it is impossible to determine what his meaning is.

46. BOMBUS PENNSYLVANICUS (De Geer), ♀.

47. BOMBUS SCUTELLARIS Cress., ☿.

ADDITIONAL SPECIES FROM WESTERN CENTRAL KANSAS.

PLANICEPS CONCOLOR Smith, ♀.

From Smith's description this differs only in the greater size (length .56 in.).

Compared with *P. niger* Cress., the face is more flattened, the head is densely pubescent, the thorax is longer and the median impressed line on the metathorax is very indistinct, the second recurrent nervure is received well beyond the second submarginal cell, the submedial cell of anterior wings extends upon the externo-median nervure barely beyond the medial cell, and in the posterior wings falls very little short of the medial cell. In *P. niger* the second recurrent is received barely beyond the second submarginal cell, the submedial cell of anterior wings extends well beyond the medial cell and of posterior wings falls well short of it on the externo-median nervure.

CEROPALES ELEGANS Cress., ♂.

Differs from the ♀, the only sex described, as follows: length .40 in.; face below and between antennæ and broad orbits yellow, two basal joints of antennæ yellow beneath, anterior tibiæ and basal joint of their tarsi yellow anteriorly; incisures of thorax black; a band on the first segment of the abdomen, even anteriorly and uneven posteriorly, bands on segments two to four, deeply excavated on each side anteriorly, and a large median spot on segments five and six, yellow.

CEROPALES BREVICORNIS n. sp., ♂.

Antennæ very short, reaching to the scutellum only. Costal nervure and stigma pale testaceous.

This may prove to be the male of *C. longipes* Smith, but it differs from that species in having no yellow spot above the anterior coxæ, in the mandibles being black, and in the white color of the abdominal bands, which are not interrupted on the second and following segments. From *C. fasciata* Say it differs besides in the ornamentation of the legs and in having no yellow line on the disk of the mesothorax.

From *C. fulvipes* Cress. (of which the ♀ only is described) *brevicornis* differs as follows: length .30 in., labrum, face below and between antennæ, two basal joints of the antennæ beneath, anterior tibiæ in front and spots at the base and near the tip of intermediate tibiæ, and the basal joint of the four anterior tarsi, yellow; no fulvous color on the posterior coxæ; markings on the abdomen white, the first segment with large lateral spots, the second to the fifth segments with broad *apical* bands, which are dilated laterally and sinuate on each side anteriorly.

In the description of *fulvipes* there is, I think, an error in locating the abdominal bands upon the "anterior" margins of the segments, for in all other species of the genus the bands are subapical. If this be the case in *fulvipes*, *brevicornis* is, in all probability, its male.

TACHYTES TEXANUS Cress., ♂.

The antennæ are not crenulated, as is usual in ♂ *Tachytes*, but are grooved internally, and the joints from the third to the ninth are angulated at the tip posteriorly. The eyes are somewhat sinuous on the inner border. The metathorax is subtruncate. The second submarginal cell is less narrowed towards the marginal than usual, the nervure between the second and third submarginal cells being nearly straight; the radial cell has a faint appendiculation. The area on the seventh dorsal segment is distinctly limited by lateral carinæ, and is broadly truncated at the apex. The eighth ventral segment is produced into two sharp spines, which project beyond the angles of the truncation of the dorsal area.

LARRA DIVISA n. sp., ♀.

Length 11^{mm} to 14^{mm}; expanse five-thirds of the length. Black; the wings black, violaceous; the abdomen red, the basal segment, excepting the apical margin, black; mandibles near the base, border of the tegulæ, anterior tarsi and tips of the four posterior tarsi piceous. Head much broader than the thorax, compressed, the front not prominent;

eyes but slightly convergent, the space between them on the vertex being unusually wide; antennæ slender, unusually long, extending to the base of the abdomen; median portion of the clypeus broadly produced, armed with two teeth on each side; the labrum concealed; mandibles long, very slightly dentate near the base within. Head and thorax closely punctured, opake; the anterior portion of the clypeus with larger punctures intermixed; anterior ocellus in a pit, from which an impressed line extends to the insertion of the antennæ; posterior ocelli obliquely distorted, an angular depression behind them connected with the depressions on each side. Mesothorax with four short impressed lines anteriorly, a longitudinal impressed line on scutellum and disk of metathorax, disk of metathorax finely striated transversely, the posterior face with a deep elongated pit above, from which an impressed line extends to the insertion of the abdomen. The median joints of the anterior tarsi narrowing rapidly towards their base; the anterior tarsi armed with short stout spines externally, there being six spines on the basal joint and two at the apex of the following joints externally, each spine as long as the third tarsal joint. Margins of the abdominal segments shining, apical segments clothed with an appressed golden pubescence, area on the sixth segment sharply defined, strongly punctured.

Allied to *L. æthiops* (Cress.).

MONEDULA EMARGINATA Cress., ♂.

The four anterior tarsi with slight spines at the tips of the joints. Intermediate femora not serrate beneath, or with only the indication of a tooth near the knee. Basal joint of intermediate tarsi slightly curved and with a row of four or five slender spines near the base beneath. Abdomen slightly pubescent, the disk of the second ventral segment with a tubercle on each side of the median line. The apical segment of the venter bearing the four stout teeth is the eighth; the lateral teeth nearly straight.

COLLETES CILIATA n. sp., ♀.

Length 8^{mm}. Robust; black, tips of the mandibles and tarsi rufo-piceous, flagellum piceous beneath. The pubescence pale ochraceous, the segments of the abdomen with an even fascia of appressed pubescence. Space between the eyes and mandibles unusually short; clypeus coarsely punctured, the punctures running into rugæ, an abbreviated transverse depression just before the tip; labrum with several irregular longitudinal depressions at the base. Sides of the prothorax angulated, not prominent. Disk of the thorax shining, finely and sparsely punctured, a spot in the centre without punctures. Base of the metathorax irregularly reticulated, the sides closely punctured. Anterior coxæ unarmed, all the *tarsi ciliated with long hairs*, *the tarsal claws cleft*, the inner tooth almost equalling the claw. (In this species, as in *C. æstivalis mihi*, the cleft claws of the female have the prongs more divergent than they are in male *Colletes.*) Wings hyaline, tegulæ, stigma, and some of the nervures testaceous, the other nervures piceous. Abdomen convex, shining, very delicately punctured; venter moderately pubescent, the margins of the segments testaceous.

BOMBOMELECTA n. g. (*Bombus* + *Melecta*).

♀, Mandibles with a short and stout tooth on the middle of the inner margin. Maxillary palpi distinctly six-jointed. Scutellum with a short spine on each side. Claws of all the tarsi alike and not dilated. Third submarginal cell rather shorter than in *Melecta.* In other respects this genus agrees with *Melecta*, which has only five joints in the maxillary palpi, has the scutellum bituberculate, and the claws of the four posterior tarsi dilated.

BOMBOMELECTA THORACICA (Cress.).

Syn. *Melecta thoracica* Cress., Rep. Wheeler's Survey, vol. v, p. 726 (1876).
Melecta pacifica Cress., Tr. Am. Ent. Soc. vii, p. 91.

The ♀ specimen from Western Kansas has a black, coriaceous, triangular spot on the margin of the wing at the tip of the marginal cell, and the face above the antennæ is tufted with pale pubescence, and it agrees with *pacifica* var. *fulvida.*

A specimen from Como, Wyoming, also collected by Mr. Williston, has no such spot on the wing, the marginal cell having a very slight appendiculation; the specimen is a little smaller, has the pubescence on face entirely black, has the proboscis shorter and the tooth on the mandibles less developed, and the third submarginal cell more narrowed towards the marginal.

Melecta Edwardsii Cress. may belong to the genus *Pseudomelecta* Rad., which differs from *Melecta* in having the scutellum terminate in two large horizontal spines.

Art. XXI.—Further Notes on the Ornithology of the Lower Rio Grande of Texas, from Observations made during the Spring of 1878.*

By George B. Sennett.

Edited, with Annotations, by Dr. ELLIOTT COUES, U. S. A.

LETTER OF TRANSMITTAL.

MEADVILLE, PA., *May* 30, 1879.

SIR: I herewith present the notes of my observations and collections in Texas in the spring of 1878. Three months covered the time from my departure from Erie, Pa., to my return in June; but two months, only, were spent in the field, the remainder of the time being taken up in travelling and necessary delays attending it.

Ten days at Corpus Christi, cruising about the bay and its adjacent waters, gave me a better knowledge of the water-birds than I had before acquired. The objective point, Lomita Ranch, situated on the Rio Grande, seven miles above Hidalgo, and sixty-five miles from Brownsville, was reached April 8, and was the locality chosen for field-work.

Nothing occurred to stay the fulfilment of my plans, excepting an accident, in shape of the entering of a poisonous thorn into my knee, which laid me up for three weeks in the middle of the breeding season. Although suffering intense pain, I was able to be bolstered up, so as to study and prepare specimens, and direct the work of my assistant, whom I was obliged to depend upon, and who proved very efficient. Notwithstanding this drawback, we prepared over five hundred birds, including a large majority of the 168 species observed (five of which are new to our fauna); some fourteen hundred eggs, nearly all rare, and some entirely new; a few mammals and reptiles; quite a collection of *Lepidoptera*, many of which are interesting; a few fishes; and various kinds of insects that came within our reach. The *Lepidoptera* were sent to Mr. J. A. Lintner, who is now preparing a paper on my collections of both trips.

Of the birds, nearly every family of the North American *Ornis* is represented on our southern border. It is remarkable, however, that, on both trips, no Nuthatches and only one species of the Crow family (Rio Grande Jay) were observed. At Ringgold Barracks, or Rio Grande City, only thirty-five miles above Lomita, Crows are said to be common, but what is told of their boldness makes it seem more probable that they are Ravens.

My grateful acknowledgements are due to my assistant, Mr. J. N. Sanford, of Grant

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* [For "Notes on the Ornithology of the Lower Rio Grande of Texas, from Observations made during the Season of 1877," see this Bulletin, vol. iv, No. 1, pp. 1–66, February 5, 1878.

The present article continues the subject, giving in full the results of Mr. Sennett's important observations and collections made during his second season in Texas.

The species of this paper new to the United States fauna were first announced in *The Country* of July 13, 1878, p. 184.

Some early notes, more especially relating to oölogy, have appeared in *Science News*, vol. i, No. 4, Dec. 15, 1878, pp. 57–59; No. 7, Feb. 1, 1879, pp. 106, 107; No. 8, Feb. 15, 1879, pp. 120, 121; No. 9, March 1, 1879, pp. 132–134; No 10, March 15, 1879, pp. 151–153. —E. C.]

Co., Minn.; to Mr. J. B. Bourbois, the proprietor of Lomita Ranch, for hospitalities and valuable assistance; to the Hon. Geo. W. McCrary, Secretary of War, and the commanding officers at Fort Brown and Camps Santa Maria and Edinburgh, for assistance in transportation from Fort Brown to Lomita; to Mr. C. P. Patterson, Chief of the Coast Survey, and his assistant, Capt. R. E. Halter, stationed on Padre Island, for favors extended; to Dr. James C. Merrill, Asst. Surg. U. S. A., Fort Brown, for cheerful coöperation; and to you, Sir, for identifying my birds and editing these notes.

Very truly, yours,

GEO. B. SENNETT.

Dr. Elliott Coues, U. S. A.,
Secretary U. S. Geological and Geographical Survey, Washington, D. C.

TURDIDÆ.

1. Mimus polyglottus (L.) Boie.—*Mockingbird.*

Less abundant in the densely wooded and sparsely populated country about Lomita Ranch than about the towns lower down the river, but still common. Found one nest almost wholly within a half-decayed limb, and with but a very few twigs and grasses on the open side.

2. Mimus carolinensis (L.) Gray.—*Catbird.*

On May 8 I shot a male of this species at Lomita, and about the same time saw a few others. These were the only ones seen on both trips, and they must be rare summer residents, as none of the natives had noticed the bird before I showed them this one. I found no eggs.

*286	♂	Lomita	May 8	8.75	11.25	3.50	3.62

3. Harporhynchus rufus longirostris (Lafr.) Coues.—*Long-billed Thrasher.*

This Thrush, also called Texas Thrasher, I found much more abundant at Lomita than on my former trip, owing to my being further up the river, in more wooded districts; the tangled thickets about large scattered trees being preferred by it to the chaparral. The bird is resident throughout the whole Lower Rio Grande country, and very abundant. I saw it quite frequently at Corpus Christi in the latter part of March. As regards its habits, I can add little to my notes of last year. Of a very large series of eggs taken on this trip, I found that four were usually laid in the first clutch in April, while second clutches, late in May, contained generally three. It is more wary about habitations than the Curve-billed Thrush, and builds its nest in more secluded places and nearer the ground. It feeds upon the como and other berries, as well as insects and larvæ. During its mating season it sings as well as our Brown Thrush. Results of last trip, seven birds and forty-five sets of eggs.

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* In these lists of specimens the first number is that of the specimen. The sign for sex follows. Locality and date come next. The next four numbers indicate respectively the length, extent of wings, length of wing, and length of tail. Other measurements are preceded by the name of the part.

93	♂	Lomita	April 12	11.25	13.00	4.00	4.75
151	♂	....do	April 19	11.50	13.00	3.87	4.87
282	♂	....do	May 1	11.50	13.00	4.00	5.25
312*a*	—	....do	May 5	11.25	13.00	4.00	5.00
431	♂	....do	May 15	11.50	12.75	4.12	5.13
432	♂	....do	May 15	11.25	13.50	4.00	5.00
433	♂	....do	May 15	11.50	13.25	4.00	5.00

4. Harporhynchus curvirostris (Sw.) Cab.—*Curve-billed Thrush.*

This Thrush, by some called the "Gray Curve-billed," reaches into our southern border from Mexico. Its nearest relative, Palmer's Thrush (var. *palmeri*), and other curve-billed forms of the genus, are found in the higher altitudes of New Mexico and Arizona. The northern limit of this Thrush is not fully determined, but it can be considered common in Southern Texas, and most common between Fort Brown and Ringgold Barracks, along the river. Here great alluvial deposits produce berries and insects in abundance for food, and tangled thickets, as well as great prickly-pear cactuses, afford cover and breeding resorts. In 1877, I collected from Hidalgo down to near the mouth of the river. On this trip I collected most of the time at a point several miles above Hidalgo, in the heart of the greatest growth of timber to be found on the river; and it was there that I found the Curve-billed Thrush more numerous than ever before. In point of numbers it nearly equalled the Mockingbird and Long-billed Thrush. The three species comprise all the representatives of the family observed by me during the trip.

The Curve-billed Thrush in color somewhat resembles the Mockingbird, and in the bushes, where other characteristics are not readily distinguished, may be taken for it at short range. This species, like the Long-billed, is usually more fond of dense cover than the Mockingbird, and while not often found, in the heaviest timber, yet will be found in the thickets common on the edges of such tracts. In open woodland, where clumps of tall thorny bushes and cacti surround the scattered trees, it is always found, and usually in company with the Long-billed Thrush. I did not obtain many fresh-plumaged specimens. By the 1st of April, the plumage becomes faded and worn; and, by the latter part of May, moulting begins. About this time, also, the small black fruit or berry of the como-tree, upon which the bird feeds, ripens, and it becomes almost impossible to shoot and prepare a specimen without the plumage becoming stained with the purple juices which issue from the mouth and vent. I brought home only five birds, but over forty sets of eggs.

In nesting, the habits of this species vary to suit the locality. In districts where chaparral covers the country, there is no respectable growth of timber, but now and then openings, principally occupied by prickly-pear cactuses and stunted mesquite-trees, and here their nests will be found in cactuses more frequently perhaps than in trees. But at Lomita I found five nests in trees to one in cacti. Though usually suspicious and wary, this bird is wonderfully bold at times in choosing sites for its nest. In my notes of 1877 I mention a nest with four eggs taken from an outhouse, in the centre of a village. At Lomita Ranch, close by a large and much frequented gateway, stands a young ebony-tree, from which, in plain sight, and some twelve feet from the ground, I took a nest and four eggs in April of the following season, and on May 20 I took a nest and three fresh eggs, at a height of fourteen feet, in a large ebony, close by a pathway on the edge of a cornfield. These were the highest nests found, and in both instances the birds were as tame as Robins. Nests are seldom found lower than four feet from the ground. The last nest I examined, just before leaving the ranch, was a very bulky one of this species, which I had seen built in the place where, a number of days before, I had destroyed the nest of a Mockingbird, after its young had departed. It was situated on the lowest branch of a small tree near the house, entirely exposed to view, and, standing upon a chair, I was able to look into it. It was just completed and ready for the eggs, and I did not disturb it. The second nest was much larger than the first, but composed quite similarly of thorny twigs, and lined with a few grasses. This fearlessness is exceptional, but indicates that, were the country thickly settled, this bird might become as domestic as the Mockingbird or Robin. It is resident where found, commences to breed in March on the Rio Grande, and rears several broods in a season. The first is hatched in April, and generally numbers four. By the middle or latter part of May, clutches for the second brood are full, and consist nearly always of three eggs. I have taken, however, a few sets of four from the second laying.

The eggs vary in shape from oblong oval to almost pyriform; the ends are round-pointed, and the greatest diameter nearer one end. The color is pea-green, covered more or less over the entire surface with fine brown dots. Of the large series of eggs taken, only one set was comparatively free from spots. A set of over-sized eggs, taken May 24, average 1.25 by .83. The general average is 1.12 by .79. The shell is not particularly fragile, unless incubation is well advanced, in which case it becomes so tender that it is almost impossible to prepare a fair specimen. The color becomes dull and faded when the egg is long incubated, so that its condition can generally be known without handling.

77	♀	Lomita	April 10	10.62	13.75	4.10	4.00
129	♂	....do	April 17	....	....	4.00	4.28
319	♂	....do	May 5	11.00	13.50	4.00	4.25
355*a*	—	....do	May 7	11.00	13.75	4.15	4.00
422	♂	....do	May 14	11.00	13.25	4.25	4.12

SYLVIIDÆ.

5. Regulus calendula (L.) Licht.—*Ruby-crowned Kinglet.*

It is difficult to say how abundant this sprightly little bird is on the Rio Grande, for one can get about only a small proportion of a country so densely covered with timber and chaparral. I saw none on the former trip, but this year obtained several at Lomita Ranch. My first was shot from low bushes on April 11. On April 30 I obtained another in heavy timber, and on May 13 I shot another from the lower limbs of a large tree in the heart of the woods.

88	♀	Lomita	April 11	4.38	6.87	2.25	1.70
266	♂	....do	April 30	4.25	7.00	2.13	1.75
409	♀	....do	May 13	4.50	7.00	2.20	1.50

6. Polioptila cærulea (L.) Scl.—*Blue-gray Gnatcatcher.*

At Corpus Christi, on the 23d of March, while beating about the open chaparral just outside of the town, we saw large numbers of this species, evidently migrating. Among them were a few Black-throated, Green, and Black-and-white Creeping Warblers. The Gnatcatchers were so abundant that I could have taken fifty had I been so inclined. On the Rio Grande, at Lomita, a bird and a half-finished nest of this species were brought me in May. They were seen occasionally about the open woodland, but I think are not common in such situations.

15	♂	Corpus Christi	March 23	Wing 2.10	Tail 2.00

PARIDÆ.

7. Lophophanes atrocristatus Cass.—*Black-crested Titmouse.*

This Tit, so far as is known, is found within our limits only in Southern Texas, where it is abundant and resident. The most northern records are San Antonio by Dr. Woodhouse, and Comal County by Mr. W. H. Werner (see Mr. Brewster's paper in April No., 1879, of Bull. Nuttall Orn. Club); the most western is Fort Clark by Dr. Heermann. As no mention is made of it in Mr. Lawrence's papers on "Birds of Western Mexico," it is probably confined to the Gulf slope of both Mexico and the United States. The only form of the family of Chickadees or Titmice, besides this species, thus far observed in Southern Texas, is the Yellow-headed Titmouse (*Auriparus flaviceps*). The species *L. wollweberi* and *L. inornatus*, so far as our knowledge goes, are confined to the higher altitudes of Arizona and New Mexico. The family seems to be unnoticed by Mexican collectors (with the exception of Mr. Xantus, who records that he found *A. flaviceps* at Cape Saint Lucas, as I mention in my remarks upon that bird), and the geographical distribution of the various species south of our border is as yet unknown.

I mention the different forms of the same genus found on our southern border to show how distinct are those of the Lower Rio Grande from those of the Upper Rio Grande and Colorado Valleys; the one nowhere intruding upon the habitat of another, unless it may be in the case of the Yellow-headed Tit, *A. flaviceps*. Nor are the lines of geographical distribution less noticeable in other families of birds, the Thrushes varying quite as distinctly in different localities along the border.

During this trip I saw more of the Black-crested Tit than on the former one, owing to my being more favorably situated to study it in its haunts. On arriving at Lomita, one of the first familiar birds to greet me was this Titmouse. It was one of the very few birds of those found in numbers on the former trip, whose eggs I did not obtain, being successful only in discovering a nest with young. It was essential to find its nests without delay on account of its commencing to breed earlier than any other species found in the locality. Orders were given to shoot none of this species, but to search diligently the trunks and stubs of trees for nests. In a few days, several nests were found, all containing young. It was a great pleasure to me, therefore, when, on April 20, my assistant, Mr. Sanford, placed upon my table a nest, five young, and a perfect egg of this species, together with the parent bird caught on the nest. The chicks I preserved in spirits; the egg, being infertile, was easily prepared; and both, together with the nest and bird, are in my collection. This, I believe, is the first thoroughly identified egg of this bird brought to scientific notice. The bird taken on the nest was a male, and other males were shot having bare and wrinkled bellies, showing that both sexes share in the incubation and care of the young. The nest was situated some six feet from the ground, in a hollow limb of a half-dead willow, which was leaning on some brush, and was discovered by the bird's flying into its opening. It lay some ten or twelve inches from the opening, and is composed chiefly of wool intermixed with strips of soft inner bark, and now and then bits of snake-skins; the whole being much firmer and thicker than is usual with nests that are built in hollow stubs. All the other nests found with young were situated higher, with one exception; the distance varying from four to twelve feet from the ground. I found them to occupy usually the abandoned holes of the Texas Woodpecker, *Picus scalaris;* but split forks of trees were sometimes put in use. They prefer living trees to dead ones, and in every case in my experience the opening had to be enlarged, sometimes with difficulty, before examination of the nest could be made. The localities mostly selected for nesting are groves or open timber free from undergrowth, whether in old lagoon beds, which receive the overflow from the river, or on the driest knolls. They do not avoid human habitations, as two nests were found on the ranch in ebony-trees, near buildings much frequented. The parents guard their treasures well, and are much disturbed when the nest is invaded; though not until they see that their nest is actually being handled do they give any cry of alarm, or other intimation of uneasiness than their near presence.

Like all of their kind, these birds are very active and busy; but at the time of their rearing their young, I have sat and listened to the male well up in the tree above my head, singing his whistling refrain for an hour at a time. A nest near the house was laid open with broad cuts of an ax, and the young left fully exposed as on a shelf, but the old ones reared them safely, and I saw them take wing.

The egg is rounded oval; but one end, being larger, has the appearance of being rounder than the other. The ground-color is clear dead white; distributed unevenly over the whole surface, and not very sparingly, are flecks and blotches of fawn-color of various shades, the sides having rather more than either end. Its length is .60 of an inch and its breadth .48 of an inch. The usual number of eggs which this Titmouse lays in a clutch I must put at six, as all the nests found contained that number of young, except one, which had five.

Young just from the egg are nude, with the exception of a few long, dark, downy feathers on the back, nape, and over the eyes. The first plumage is much like the adult's, but without the black crest.

When about to send the MS. to Washington, I received from Mr. Bourbois, at Lomita, a nest and four eggs of this species, taken about April 1, 1879, on his ranch. The nest is smaller and more frail than the one I obtained, and composed of about equal parts of fine inner bark and wool, with which are intermingled many bits of snake-skins. Of its location I have not yet received notes. The eggs were fresh, and vary much in size and markings. The ground-color is pinkish-white. The spots of reddish-brown are small and few in number, and scattered over the greater part of the egg, but at the larger end they are large and numerous, covering nearly the whole end, though in no case forming a ring. In shape they are round at one end, and round-pointed at the other, with the greatest diameter near the centre. Their sizes are respectively .70 by .55; .69 by .55; .63 by .54; .60 by .46.

In Mr. Brewster's notes (Bull. Nut. Orn. Club, vol. iv, No. 2, April, 1879, page 76), the measurements given of the three eggs in Mr. Ricksecker's collection are considerably larger than my single specimen described at the head of this article, and previously given in "Science News," vol. i, No. 4, p. 57. But, by comparison with the sizes of the present set, it will be seen that my first egg was not so great an exception in size as Mr. Ricksecker's eggs would lead one to suppose. It will be noticed that the largest egg of my set of four is still smaller than the smallest of his, and that of this last set of four one is even smaller than the one I obtained in 1878.

93	♂	Lomita	April 11	5.75	9.00	3.00	2.50
109	—	....do	April 12	5.85	8.50	2.75	2.50
112	♂	....do	April 14	....	....	2.82	2.70
152	♂	....do	April 19	6.00	9.25	2.87	2.50
157	♂	....do	April 20	5.75	9.25	2.87	2.50

8. AURIPARUS FLAVICEPS (Sund.) Baird.—*Yellow-headed Titmouse.*

Since the announcement of the discovery, in Mexico, of this diminutive bird, by Sundevall* in 1850, followed closely by the record of its discovery within our limits, by Lawrence in 1851, enterprising naturalists have seen it sparingly in different localities, both within our borders and in Northern Mexico. Mr. Xantus gives the only account of finding it in any numbers, and that at Cape St. Lucas, where he obtained numbers of nests and over one hundred eggs. Nowhere, however, can I learn of any large series of skins having been preserved. On my former trip I only reached its most eastern limit, Hidalgo, where I obtained but two specimens. On this trip, although my field for collecting was but a few miles further up the river, I was more successful, bringing home fourteen skins, besides many sets of eggs and nests.

Although Dr. Coues has given very full descriptions of the species in his "Birds of the Colorado Valley," yet my series of skins from Lomita vary so much in color, that I have thought best to give their specific characteristics.

Ad.—Above cinereous, primaries and rectrices edged with hoary-white, coverts edged and tipped with ash. Head all around golden-yellow with a slight olive cast on the crown. In mature birds, the central part of the feathers of the upper forehead are colored blood-orange, which shows back of the yellow feathers overlying them. In the mature ♂, the yellow of the head extends around the whole neck and upon the jugulum, and also tinges the central parts of the feathers of the belly and rump. Lesser wing-coverts deep rich chestnut-red. Wings and tail brown. Under parts light ash. The bases of the feathers of whole bird dark plumbeous. Bill .35, black, conical, acute, and slightly decurved. Feet plumbeous. Tarsus .58, longer than the middle toe and claw. Length about 4.50. Wing 2 to 2¼. Tail 2 or under.

Juv.—Above, color of adult. Wings and tail darker brown. Head showing tinge of olive-yellow on crown and auriculars. Under parts light ash, nearly white. Edges

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[*The great Swedish ornithologist first described this species in such an unexpected and out-of-the-way connection, that few, probably, have seen the original notice. The name and description appear in a footnote in an article giving an account of a lot of birds from *Africa*, under the following title:

"Foglar från Nordöstra Afrika." < *Öfvers. af Kongl. Vetensk.-Akad. Förhandl.* för år 1850, vii, pp. 125–133.—(Beskrifning på 21 Arter tillhörande af Hedenborg hemskickade Samlingar. *Aegithalus flaviceps*, p. 129.)

Mr. G. N. Lawrence having very shortly afterward redescribed the species from Texas under the name of *Conirostrum ornatum* (Ann. Lyc. N. Y. for 1851, v, p. 112, pl. 5, f. 1), Mr. P. L. Sclater took exception to this generic assignment, and referred the bird to the genus *Psaltria*, in a special paper as follows:

"Note on Psaltria flaviceps, a third American Species of the Parine Genus Psaltria." < *P. Z. S.*, 1856, pp. 37, 38.—Also: *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 92, 93.

A nearly complete index to the literature of the species is on p. 129 of my Birds of the Colorado Valley. —E. C.]

of quills hoary. Coverts edged with rufous, and lesser wing-coverts light rufous-yellow.

Habitat.—Border of United States and Mexico, from the Pacific to a point on the Lower Rio Grande, about one hundred miles from the Gulf, where the foot-hills and alluvial deposits meet. Most northern limit thus far recorded is the Gila River; the most southern, Cape St. Lucas. Not noticed by Grayson, Xantus, Sumichrast, and others on the western coast of the mainland of Mexico.

Professor Baird, in his "Review of American Birds," says of this species: "Cape St. Lucas specimens of this, as of other species, are much smaller than those from the more northern localities: thus, in No. 12,967 ♂, the wing measures 1.90, the tail 1.80; while in 6,764 (♂ ?) from El Paso, the wing is 2.15 and the tail 2.25."

"The Cape St. Lucas specimens are brighter, and the top of the head, just behind the forehead, has the feathers strongly tinged with reddish-orange."

Of my fourteen specimens from Lomita, thirteen are adults, and one is a full-grown young. In order to give a correct idea of the size of the Lower Rio Grande specimens, I have gone over the adults with great care, and the result is the list of measurements of the dried skins given at the end of this article. The majority of my specimens are bright, and have the reddish-orange on forehead more or less strongly marked. In fact, I have some specimens so strongly colored as to have some of the yellow appearing on belly and rump. From the variations in color of my series of skins, I conclude that it takes two or three years to perfect their plumage. I regret that I have not before me the specimens in the National Museum; but, from what Professor Baird says, already quoted, and also from Mr. Henshaw's report of those found by him in Arizona and New Mexico, I think that the Lomita skins are more brilliant in plumage than those from Cape St. Lucas or the Colorado Valley. As to size, my specimens are much nearer the St. Lucas specimen than the one from El Paso, which latter, I think, may be of extreme size, even for that locality.

Several nests with young were taken, and a set preserved in alcohol. The chicks, half-grown and with eyes still unopened, are perfectly devoid of down or feathers; back of head, back, and wings dark; all other parts yellow.

About half of my adult specimens were caught on the nest, which may seem strange to those not familiar with the nest; but one who has seen it can readily understand why the bird feels so secure within it. A little fellow brought me a bird alive, and when asked how he obtained it, replied, "I caught it asleep."

As regards the habits of the bird, aside from its breeding habits, I can add almost nothing to the meagre knowledge we already have. They are so diminutive and timid, upon approach always darting into the dense cover near at hand, that a mere glance at them only can generally be had, as of a leaf falling into a thicket. I have never seen them feeding, nor this season even singing, as upon one occasion the season before.

It is exceedingly difficult, if at all possible, to learn the habits of a bird no larger than a man's thumb, which affects such inaccessible places as it does. It makes its home upon ridges, dryer and less fertile than the alluvial bottoms, and where chaparral and grasses will not grow, but where numerous varieties of cactus and thorny bushes flourish, with occasional stunted, thorny trees, all together forming immense labyrinths, wherein occur occasionally tempting bare places, which seem to be paths, but yet on trial lead nowhere except to confusion, and spread over, too, with trailing cactuses, whose thorns will pierce an army boot. The greatest caution is necessary in leaving the roadways or trails through these thickets, for fear of losing the way; and a broiling, vertical sun, and a clear view above the lower growth of at very most a few yards, add still more to the difficulty of studying the bird. The nest is not so difficult of sight, but access to it is often exceedingly tedious. When reached, no bird is to be seen and not a note is heard. A wad of cotton stuffed into the small opening on the lower side of the nest secures the bird, if one is in it, and some work with the pocket pruning-shears, which are almost indispensable for obtaining nests in this section, will secure the branch with its thorny nest, the contents of which may be examined at the working-table, when the day's collecting is over. A nest, if left, would hardly be found again; or if examination were made of its contents upon the next visit, it would, in all probability, have its eggs destroyed by the parent. Although we took all the specimens of the bird that came in our way, yet many more could have been secured had we made it a special object. Those that were shot were in low bushes. In similar localities are also found Black-throated Finches, White-eyed Vireos, and occasionally a Warbler.

The nest is a marvel of bird-architecture, and consists of a hollow ball composed of a triple wall of three distinct styles of structure. The outside one is made of thorny twigs, and a few flower-stems, openly but securely intertwined among the twigs of the living branch; the middle one is a firm plaiting half an inch thick, made of flowers, flower-stems, and mosses; the inner one is a lining of feathers, matted together, sufficiently secured to the middle wall so as to line the hollow ball throughout. How different are these elaborate structures from those found by Mr. Xantus at Cape St. Lucas, as described by Professor Baird in his "Review of American Birds," p. 85: "The single known species of the genus builds a covered nest of stiff, short pieces of grass, with a hole in the side, in bushes."

The shape of the nests varies from perfectly round to retort-shape, the neck of the nest being at one side and below. The size varies from four to eight or ten inches in outside diameter; the inside diameter is about three inches, and the opening of the neck about an inch.

The eggs are rich pea-green of various shades, covered with irregular small spots and splashes of brown, sparsely at the small end, but at the other sometimes covering the entire end, though generally massed into a confluent ring. The shape is round at one end and tending to a point at the other. Twenty eggs average .606 by .445; the largest is .67 by .46 and the smallest .57 by .43.

				Length.	Wing.	Tail.
139	♂	Lomita	April 19	4.50	2.12	1.97
153	♀	....do	April 19	4.25	2.00	1.85
200	♂	....do	April 25	4.50	2.10	1.90
220	♂	....do	April 26	4.40	2.12	2.00
245	♂	....do	April 29	4.60	2.05	1.95
267	♀	....do	April 30	4.50	2.05	1.95
341	♀	....do	May 7	4.50	2.05	2.00
342	♀	....do	May 7	4.40	2.00	1.95
382	♀	....do	May 10	4.25	1.90	1.95
395	♂	....do	May 11	4.50	2.10	2.05
396	♂	....do	May 11	4.50	2.12	1.95
436	♂	....do	May 15	4.50	2.10	1.95
454	♀	....do	May 16	4.50	2.05	1.75

TROGLODYTIDÆ.

9. CAMPYLORHYNCHUS BRUNNEICAPILLUS (Lafr.) Gray.—*Cactus Wren.*

On my former trip I did not find a single one of this species between the mouth of the river and Hidalgo. On this trip, about seven miles above Hidalgo, where the foot-hills begin, I found it not uncommon in certain localities. The limit of this bird's habitat in the United States is, on the east, very strictly defined. At a point from the Gulf about one hundred miles by road or three hundred by river occurs its eastern limit. Here I came upon a ridge densely covered with cactuses of large size and a few scattering trees, where I found this bird in such numbers that at times a dozen could be seen at once; and in an hour or two three of us examined as many as fifty nests in different stages of completion, from those just begun to those containing young ready to fly. The nest is large and usually confined to the prickly-pear cactus, so that it is easily found.

In flight this bird appeared to me more like a Thrush than a Wren. It was not very shy when away from the nest, and we could easily approach to within gun-shot range; but at nearer approach it would dart off into thickets or trees, where it would dodge about among the branches, peering and scolding at us continually. Its song is loud and rather harsh, and unlike any other bird's song within my knowledge. I am unable to describe it. I have come upon this bird while feeding upon the seeds of ground-cacti, or upon worms or grubs in the ground. Many specimens taken had their bills covered with mud. It was very difficult to see it about its nest. Only once did I see one fly from a nest, which was but half constructed. I saw nothing like creeping in its habits, and I do not know why it should be named Brown-headed *Creeper* Wren. I did not meet with it until the 7th of May, probably owing to our having to go some distance from the ranch to reach the open cactus ridges, where it loves to dwell. It is eminently a bird of the cactus, still not altogether confined to it for nesting purposes. I have discovered its nests in junco-, ebony-, and mesquite-trees. On May 21 I found two new but empty nests, some ten feet from the ground, one on each side of an ebony standing alone, and on the same day a fine nest in the lower part of a large mistletoe, at least sixteen feet from the ground, in a mesquite-tree. Several times I examined nests in the junco, which is oftener seen in bush-form than in proportions entitling it to the name of tree. It consists of a mass of green thorns, without leaves, and so full of pitch that it readily burns when green and full of sap. The nests in the cacti were never found lower than three feet from the ground, and usually four or more.

The nests are well described in Dr. Coues's "Birds of the Colorado Valley," p. 158, and I can add little of interest. Nests of the previous season become battered down by the rains, and frequently a new one is built on the top of an old one. In none did I see twigs entering into their composition; all were composed of the long grasses abundant in the vicinity, and lined with feathers, sometimes to the very mouth of the retort- or bottle-shaped structure. On May 14 I took my first nest of this bird, containing four addled eggs, which had been abandoned, as I had watched for a week for their owners to put in an appearance without avail. On May 21 young nearly ready to fly, fresh eggs, and nests not yet finished, were found in abundance in the same locality, so that it is hard to tell about the particular season for breeding, or whether they rear more than one brood. One nest contained five eggs, the others four or less. The eggs are unmistakable in color and shape. They appear rich buff without a magnifying-glass, so fine and closely laid are the spots upon the white ground. They are quite slender, and more pointed at one end than the other. In size they average .94 by .65; the largest one taken is 1.00 by .66, and the smallest .88 by .63.

The four young taken May 21 from one nest, and preserved in alcohol, have top of head dark brown, back and quills colored like adult, but darker, the white streaks and spots much fainter, under parts like adult, with the black spots less conspicuous; russet on flanks, lower belly, and under tail-coverts very plain; bill brown; feet pale. Young, when first hatched, have fine, long, light brown down on the feather-tracts.

344	♂	Lomita	May 7	8.12	10.75	3.38	3.00
447	♀	....do	May 16	8.35	11.00	3.25	3.12
448	♂	....do	May 16	8.50	11.50	3.50	3.12
449	♂	....do	May 16	8.37	11.25	3.35	3.00
450	♂	....do	May 16	8.50	11.50	3.37	3.13
451	♂	....do	May 16	8.50	11.25	3.50	3.13
481	♂	....do	May 22	8.37	11.00	3.31	3.12
482	♂	....do	May 22	8.75	11.25	3.50	3.13
483	—	....do	May 22	8.50	11.50	3.45	3.25
484	♂	....do	May 22	8.00	11.25	3.35	2.85
485	♀	....do	May 22	8.38	10.75	3.37	3.25
503	♀	....do	May 23	8.38	11.25	3.50	3.25
504	♂	....do	May 23	8.75	11.50	3.50	3.25

10. THRYOTHORUS LUDOVICIANUS BERLANDIERI (Couch) Coues.—*Berlandier's Wren.*

There is little to be said about this variety, for in every respect its habits are similar to those of the Carolina Wren. I paid considerable attention to this species on this trip, owing to the forms obtained the year before being so faintly marked and therefore puzzling. The result is, a large series of well-marked specimens, and a confirmation of my former statement that *berlandieri* is the only form of this species resident on the Rio Grande.

The eggs of this Wren vary in color and marking from those of the Great Carolina Wren to Bewick's Wren, but in size come nearer to the former. Those obtained on this trip average .73 by .57.

72	♂	Lomita	April 10	5.62	7.75	2.25	2.00
102	♂	....do	April 12	....	....	2.25	1.80
113	♀	....do	April 14	....	....	2.18	1.97
144	♂	....do	April 19	5.75	7.75	2.37	2.00
164	♂	....do	April 21	5.75	7.75	2.30	1.90
186	♂	....do	April 24	5.62	7.75	2.32	1.95
188	♂	....do	April 24	5.75	7.75	2.30	2.00
415	♂	....do	May 13	5.75	7.75	2.25	1.90
434	♂	....do	May 15	5.80	8.00	2.37	2.00
435	♀	....do	May 15	5.75	8.00	2.37	2.00
465	♀	....do	May 17	5.50	7.50	2.25	1.75

11. THRYOTHORUS BEWICKI LEUCOGASTER Baird.—*White-bellied Wren.*

I wish to reverse the opinion given in my former notes* in regard to this bird, and would call this variety the only form resident on the Lower Rio Grande. I did not take a true *bewicki* during the trip. I saw no difference, in habits, between the White-bellied Wren and its Eastern relative.

A fine set of four fresh eggs was taken April 18 in a brush fence at Lomita Ranch. The nest was quite simple, being but a handful of hair, leaves, feathers, cotton, and fine bark matted together. This bird builds its nest in a great variety of places, and is much more domestic in its habits than *berlandieri*. A pair of them built their nest between the ridge-pole and thatching of the roof of a corn-crib which we occupied in preparing our specimens, and almost over our heads. They were so tame as to hop about among the cotton, tow, papers, &c., on our benches, within a few feet of us, and to take whatever pleased them. The nest had an outside bulky structure, made up of twigs, corn-husks, &c., and was lined with a matting like the one described. Unfortunately, just as it was completed, the female was shot by a Mexican. The accident gave us much regret, since we enjoyed their companionship and the privilege of so close observation. The eggs have a ground-color of white, covered not very profusely with reddish-brown of various shades, massed in distinct broad bands near the larger end. The shape is round at the large end and round-pointed at the other. In size they fall below those of Bewick's Wren from the Middle United States. They vary in length from .64 to .61 and in breadth from .49 to .46.

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* Bull. Geol. and Geogr. Survey of the Territories, vol. iv, No. 1, p. 9.

[Respecting the use of the name *leucogaster* by Gould for a species of *Uropsila* Scl. & Salv., and its subsequent employ by Baird for a variety of *Thryothorus bewicki*, see Birds Col. Vall., 1878, p. 170.—E. C.]

158	♂	Lomita.....	April 20	Wing 2.12. Tail gone, but new one just starting.			
452	—	....do	May 16	5.25	7.00	2.10	2.00
453	—	....do	May 16	5.25	7.00	2.13	2.00
505	♀	....do	May 25	5.35	7.00	2.12	2.00

ALAUDIDÆ.

12. EREMOPHILA ALPESTRIS CHRYSOLÆMA (Wagl.) Coues.—*South-western Horned Lark.*

Seen about the sand flats at Corpus Christi March 20, also at Point Isabel April 3, after which time I did not visit suitable places for it.

SYLVICOLIDÆ.

13. MNIOTILTA VARIA (L.) V.—*Black-and-white Creeper.*[*]

I shot a fine-plumaged male of this species at Corpus Christi on March 23, and saw several others. They were in company with Blue-gray Gnatcatchers and Black-throated Green Warblers. At Lomita, on April 24, I obtained a female in very dull plumage, and in May several of both sexes.

13	♂	Corpus Christi....................	March 23	Wing 2.83. Tail 2.			
190	♀	Lomita........................	April 24	5.00	8.10	2.56	1.95

14. PARULA NIGRILORA, Coues.—*Sennett's Warbler.*

After reaching Lomita, April 8, the first two days were chiefly occupied in getting conveniences and supplies in order. On the first collecting day, we heard its notes, and the first Warbler obtained was this pretty little *Parula.* It is truly a bird of the forest, and delights to be in the upper branches of the tallest trees. The song of the male is almost continuous as it flits about, and is so clear that it can be heard at a long distance and readily distinguished from all other birds'. By its notes we could locate the bird, and this accounts for our securing so many more males than females. Were it not for its song, I doubt if we would have taken many, owing to their diminutive size and habit of frequenting the tops of the forest-trees. As it was, by only taking such as came in our way,

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[* I wish to complete here the reference to the curious synonym of this bird, "*Nectarinia varia,*" left defective in B. C. V. 205, as I had at that time no opportunity of handling Küster's continuation of Hahn's work. The reference is:

Nectarinia varia, *Küster*, Ornith. Atl. der aussereurop. Vög. nach Dr. C. W. Hahn's Werke fortges. von H. C. Küster, Erste Abtheil., Heft 8, Nectariniden I., p. 2, pl. 2. (8vo, Nürnberg, Zeh, 1836.)
—E. C.]

we shot over twenty specimens, and could have taken any number more had we set out for them alone. In feeding habits I could see nothing different from our familiar Blue Yellow-back, *P. americana.*

When the few specimens of this new species were obtained in 1877, little or nothing was seen of its breeding habits. One of the great inducements to repeat the trip to the Rio Grande was to further our knowledge of this pretty Warbler. From the time of my arrival at its habitat, early in April, nearly every day specimens were obtained and examined, to ascertain the condition of the ovaries, with the view of finding nests and eggs. How well I remember my anxiety, about the middle of May, when, after a number of weeks' stay and examination of many birds of this species, dissection showed the eggs to be only just developing. The weather was growing intensely hot, the time for our departure was set in the near future, and it seemed as if we could not obtain an egg of a bird so common, before returning home. But on May 17, while my assistant and I were trying to save some large birds, Pancho, our Mexican guide, brought me the most interesting and peculiar nest I had seen in that locality, together with one broken egg, belonging to this new Warbler. He observed the nest while riding about the timber and chaparral, and it was while standing on his saddle, reaching for it, that his horse started and threw the only egg it contained to the ground. Our prospects thus looked brighter, and we had hopes of finding other nests within a few days. Instructions were given to all the Mexicans about the ranch to search clumps of moss and orchids for them, but without avail, and we left the country the latter part of May with but a single nest and a poor broken egg to illustrate the breeding habits of *P. nigrilora.* The date, May 17, of finding nest and egg, I judge to be unusually early. The great majority must breed in June, for on July 5, of the season before, what I have no doubt were young of this bird were found near Brownsville by Dr. Merrill, but not recognized. None of our Northern form, *P. americana*, were observed on the trip, and the only form of *Parula* breeding on our southern border is *nigrilora.* This Warbler must arrive on the Rio Grande in March, for in the first part of April it was there in full force. I confidently expect this bird to be found in wooded districts north of the Rio Grande and possibly north of the Nueces River. That this form has not been met with in Mexico by the several field ornithologists who have visited that section seems strange, yet the small size and forest habits of the bird would account perhaps for its being so long concealed from observation.

The nest is exceedingly interesting and beautiful. It is made in a gray mistletoe-like orchid, an air-plant very common on the Rio Grande, which establishes itself on the small branches of trees, and varies in size up to eight or ten inches in diameter. This one is six inches long by four and one-half inches wide, quite firm in texture, and was fastened some ten feet from the ground, to the end of a drooping branch of brazil-tree in open woodland. The nest is constructed very simply, being formed by parting the gray leaves of the orchid and digging into its centre from the side, a cavity some two inches in diameter being made, with an opening of one and one-quarter inches. The bottom and sides are lined pretty well up with short cottony wood fibres, forming a fine matting for the eggs to rest upon. A firmer and more secure nest is seldom seen, although so easily made. I imagine a day would complete one, and certainly but little time need be wasted in selecting a site, for thousands of orchids stand out on the partially dead branches or on trees with little foliage. That they build also in the hanging trusses of Spanish moss, so abundant everywhere, is true, the young before referred to being found in a nest in one.

The egg is very similar to *P. americana;* its spots of lilac and brown forming a broad incompact band near the larger end, and over the whole surface now and then a fleck of same colors on the dull white ground. The egg measures .67 of an inch in length and .46 of an inch in breadth.

The measurments here given were taken from birds in the flesh, and, I think, are quite correct.

70	♂	Lomita	April 10	4.50	6.85	2.12	1.62
115	♂	....do	April 15	4.50	6.50	2.05	1.50
116	♀	....do	April 15	4.40	6.50	2.00	1.50
149	♀	....do	April 19	4.75	7.50	2.25	1.62
250	♂	....do	April 29	4.35	6.25	2.00	1.50
251	♂	....do	April 29	4.50	6.60	2.05	1.50
263	♀	....do	April 30	4.25	6.50	2.00	1.45
264	♂	....do	April 30	4.37	6.75	2.05	1.55
265	♂	....do	April 30	4.25	6.75	2.05	1.50
279	♂	....do	May 1	4.25	6.75	2.07	1.50
294	♂	....do	May 3	4.25	6.50	2.00	1.50
337	♂	....do	May 7	4.50	6.62	2.00	1.50
369	♂	....do	May 8	4.50	6.85	2.10	1.50
375	♂	....do	May 9	4.75	6.75	2.12	1.62
393	♂	....do	May 11	4.62	6.75	2.00	1.50
411	♀	....do	May 13	4.25	6.50	1.95	1.40
412	♂	....do	May 13	4.30	6.65	2.00	1.50
413	♂	....do	May 13	4.40	6.50	2.00	1.50
424	♂	....do	May 14	4.50	6.65	2.05	1.55
480	♂	....do	May 20	4.40	6.60	2.00	1.50

15. HELMINTHOPHAGA RUFICAPILLA (Wils.) Bd.—*Nashville Warbler.*

Found at Lomita in low shrubbery, during our stay, in company with Black-throated Green and Golden Warblers. Not uncommon.

95	♂	Lomita	April 11	4.85	7.75	2.37	1.85
199	♂	....do	April 25	4.75	7.50	2.25	1.75
205	♀	....do	April 26	5.00	7.25	2.30	1.75

16. HELMINTHOPHAGA PEREGRINA (Wils.) Cab.—*Tennessee Warbler.*

A few obtained about May 1st at Lomita, but nothing seen of their habits. They were about shrubbery in woodland.

221	♀	Lomita	April 26	4.75	7.75	2.45	1.62
278	♀	....do	May 1	5.10	7.75	2.55	1.85

17. DENDRŒCA ÆSTIVA (Gm.) Bd.—*Golden Warbler.*

Quite common at Lomita about the 1st of May, and seen occasionally during the remainder of my stay. I did not find any nests, although it undoubtedly breeds there.

18. DENDRŒCA VIRENS (Gm.) Bd.—*Black-throated Green Warbler.*

Seen and obtained at Corpus Christi the last of March, and at Lomita in April and May. At the latter place it was taken in company with Maryland Yellowthroats, but was not so abundant.

12	♂	Corpus Christi	March 23		Wing 2.40.	Tail 2.	
203	♂	Lomita	April 26	5.40	8.00	2.60	2.00
206	♀	....do	April 26	5.00	8.00	2.50	1.85

19. DENDRŒCA PENNSYLVANICA (L.) Bd.—*Chestnut-sided Warbler.*

On May 13, at Lomita, I obtained several of this species in thickets near the river-bank.

20. DENDRŒCA MACULOSA (Gm.) Bd.—*Black-and-yellow Warbler.*

Only one noticed at Lomita.

464	♀	Lomita	May 17	4.85	7.50	2.25	1.85

21. SIURUS NÆVIUS (Bodd.) Coues.—*Short-billed Water Thrush.*

This bird is common about the water-holes back from Lomita. Eight or ten were shot in one afternoon in May.

343	♂	Lomita	May 7	6.25	9.75	3.00	2.25
349	♀	....do	May 7	6.15	9.25	2.85	2.12
350	♀	....do	May 7	6.00	9.25	2.87	2.00

22. GEOTHLYPIS TRICHAS (L.) Cab.—*Maryland Yellowthroat.*

Found as common about Lomita as any other Warbler. It frequents the rank weeds, willows, &c., of lowlands. First seen April 11, and observed daily during my stay.

84	♂	Lomita	April 11	5.25	7.00	2.12	2.12
85	♂	....do	April 11	5.25	7.25	2.25	2.06
254	♀	....do	April 30	5.12	6.75	2.10	1.85
397	♀	....do	May 11	5.35	7.00	2.25	2.00

23. GEOTHLYPIS PHILADELPHIA (Wils.) Bd.—*Mourning Warbler.*

I have nothing to note of the habits of this species. Shot a number about the shrubbery in the vicinity of woods, but only preserved three.

377	♀	Lomita	May 9	5.62	7.60	2.38	2.00
394	♂	....do	May 11	5.50	7.75	2.50	2.00
414	♂	....do	May 13	5.50	8.00	2.60	2.00

24. ICTERIA VIRENS (L.) Bd.—*Yellow-breasted Chat.*

I found this bird more numerous at Lomita than at Hidalgo the season before, and could have taken any number of specimens had I been so disposed. I have nothing new to add to the habits heretofore noted.

142	♂	Lomita	April 19	7.50	10.00	3.10	3.10
209	♂	....do	April 26	7.75	10.25	3.12	3.25
210	♀	....do	April 26	7.12	9.50	2.87	3.00

25. MYIODIOCTES PUSILLUS (Wils.) Bp.—*Green Black-capped Flycatching Warbler.*

Observed in the shrubbery, weeds, and willows of damp places during my stay, but in limited numbers.

206	?	Lomita	April 26	5.00	7.00	2.20	2.00
207	♀	....do	April 26	5.00	7.12	2.20	2.00

26. SETOPHAGA RUTICILLA (L.) Sw.—*Redstart.*

Obtained one female of this species at Lomita on May 9, and saw no others.

378	♀	Lomita	May 9	5.25	7.50	2.50	2.25

TANAGRIDÆ.

27. PYRANGA ÆSTIVA (L.) V.—*Summer Redbird.*

Common at Lomita, as at Hidalgo the year before. Generally seen in woodland. I obtained but one set of eggs of this species. They are shaped like Thrushes' eggs, and are light green in color, blotched and spotted sparingly at the small end, but heavily at the large end, with various shades of lilac, purple, and brown. The size averages .95 by .67.

62	♂	Lomita	April 9	7.75	12.25	3.85	3.00
101	♀	....do	April 12	....	....	3.65	3.15
178	♂ juv.	....do	April 24	7.75	12.00	3.75	3.00
195	♂	....do	April 25	8.00	12.00	3.75	3.10

HIRUNDINIDÆ.

28. TACHYCINETA BICOLOR (V.) Coues.—*White-bellied Swallow.*

Seen at Corpus Christi and upper end of Padre Island during the last days of March. None noticed at Lomita.

29. PETROCHELIDON LUNIFRONS (Say) Cab.—*Cliff Swallow.*

Notwithstanding we made sad havoc with its nests and eggs about the court-house at Hidalgo in 1877, this bird was on hand again the following year, but I think not in such great numbers. At Lomita there were no favorable places for it to breed, and I did not observe it.

30. Cotyle riparia (L.) Boie.—*Bank Swallow.*

Small troops seen about the river and water-holes throughout May, and they undoubtedly remain there to breed. At no time, however, did I see them in such numbers as is common about Lake Erie.

290	♀	Lomita........................	May 3	5.00	10.60	3.85	2.00

AMPELIDÆ.

31. Ampelis cedrorum (V.) Bd.—*Cherry-bird.*

On the 28th of April, during the hottest period of my stay on the Rio Grande, I heard a flock of these birds for some time during the middle of the day in a grove near the house. Their wheezing "*tsee-tsee*" was perfectly familiar and unmistakable. A little later than this, the year before, I shot several in about the same place.

VIREONIDÆ.

32. Vireo olivaceus (L.) V.—*Red-eyed Vireo.*

On May 13 I shot several of this species in woods near the bank of the river.

33. Vireo solitarius (Wils.) V.—*Solitary Vireo.*

A single specimen of this species was shot in a tall ebony-tree, back of the house, at Lomita, April 30. It approximates to variety *plumbeus*, rather more in size than in color. I instructed my assistant to keep a sharp lookout for others of this bird, but succeeded in obtaining none, and I think it must be rare to that locality. Tarsus .75; middle toe and claw .72; whole bill .38; bill from nostril .27.

268	♀	Lomita........................	April 30	5.75	9.75	3.00	2.12

34. Vireo noveboracensis (Gm.) Bp.—*White-eyed Vireo.*

A common resident, observed to be more abundant in May than in April. Nests and eggs taken April 30.

35. Vireo belli Aud.—*Bell's Vireo.*

Mr. G. N. Lawrence inclines to place two doubtful specimens under this head. One is undoubtedly a full-grown young, and taken April 26. The other I think is an adult, although at first I supposed it to be a young also, and was taken May 10.

208	Sex ?	Lomita........................	April 26	Wing 2.15.		Tail 1.73	
381	Sex ?	....do	May 10	5.00	7.00	2.25	1.75

LANIIDÆ.

36. LANIUS LUDOVICIANUS EXCUBITORIDES (Sw.) Coues.—*White-rumped Shrike.*

Observed at Corpus Christi March 23, and on the Rio Grande during April. Less common in the heavily wooded districts about Lomita than farther down the river. No specimens taken.

FRINGILLIDÆ.

37. CHRYSOMITRIS MEXICANA ARIZONÆ Coues.—*Arizona Goldfinch.*

A few of this species were seen at Lomita, during May, about flower-stalks of weeds and bushes; but one only was secured, a handsome male, in full plumage.

280	♂	Lomita	May 1	4.50	8.00	2.50	1.63

38. PASSERCULUS SAVANNA (Wils.) Bp.—*Savanna Sparrow.*

Common at Corpus Christi during the last of March, and occasionally seen at Lomita Ranch in May. No doubt it is resident there. Its presence so far from the coast is perhaps noteworthy. No variations from eastern forms were noted, except that Rio Grande specimens are paler.

11	♂	Corpus Christi	Mar. 22	6.00	9.50	3.00	2.13

39. COTURNICULUS PASSERINUS (Wils.) Bp.—*Yellow-winged Sparrow.*

But one specimen was secured. It was shot among the tufts of wild-tomato vines in company with Green Finches and Chats. Nothing noted of its habits.

147	♀	Lomita	April 19	5.25	8.25	2.50	1.80

40. MELOSPIZA LINCOLNI (Aud.) Bd.—*Lincoln's Finch.*

Seen at Lomita by roadsides and in dry open places.

59	♂	Lomita	April 9	5.85	7.85	2.25	2.12
61	♂	....do	April 9	....	....	2.50	2.45
301	♂	....do	May 4	6.00	8.50	2.50	2.25
320	♂	....do	May 5	6.00	8.50	2.50	2.35

41. POOSPIZA BILINEATA (Cass.) Scl.—*Black-throated Finch.*

Found at Lomita Ranch in even greater numbers than at Hidalgo the season before. It is the sweetest singer of all the birds that frequent the thorny bushes of that region, and I have willingly undergone a broiling sun and considerable laceration from thorns and spines of cactus to listen to its note.

I secured three sets of its eggs in April at Lomita. Several nests were discovered in May, but they all contained young. My observations of its breeding habits differ somewhat from those recorded of it on the arid plains of the Utah Basin. Its nest differs from former descriptions in having more or less horsehair and few rootlets for lining. One nest was fully six feet from the ground, and the others somewhat lower, but none were found very near the ground, and all were placed securely in crotches. The locality worked over this season had much less open and barren ground than my field of last year, cactus and large thorny bushes covering pretty thickly all spots free from chaparral or timber; yet I found the Black-throated Finch as abundant as in the more barren country. Its eggs are perceptibly smaller than heretofore recorded; their length varying from .70 to .66, and their breadth from .55 to .52.

65	♂	Lomita..................	April 10	5.25	8.00	2.50	2.25
148	♂	....do	April 19	5.50	8.25	2.50	2.25
198	♂	....do	April 25	5.50	8.00	2.50	2.25
218	♀	....do	April 26	5.35	8.00	2.45	2.25
219	♂ juv.	....do	April 26	5.00	8.00	2.55	2.12
312	♂	....do	May 5	5.50	8.25	2.50	2.25

42. SPIZELLA SOCIALIS (Wils.) Bp.—*Chipping Sparrow.*

Obtained in April and May at Lomita, but not common.

43. ZONOTRICHIA LEUCOPHRYS INTERMEDIA Ridgw.—*Ridgway's Sparrow.*

Not common about Lomita, the country being too thickly wooded to suit its habits.

75	♀	Lomita...........................	April 10	6.75	9.50	3.00	2.75

44. CHONDESTES GRAMMICA (Say) Bp.—*Lark Finch.*

Seen occasionally at Lomita about the hedges skirting the ranches, but not so abundant as farther down the river, where the country is more cultivated and less wooded.

476	♂	Lomita...........................	May 20	6.62	10.50	3.37	2.50

45. CALAMOSPIZA BICOLOR (Towns.) Bp.—*Lark Bunting.*

Seen March 21 and 22, at Corpus Christi, in flocks of thirty or forty, on the outskirts of the towns. Specimens obtained there, and also at Point Isabel, April 3. All were moulting and in poor plumage.

7	♂	Corpus Christi...............	March 21	6.75	11.50	3.38	2.50
8	♂	....do	March 21	7.50	11.75	3.50	2.75
9	♀	....do	March 22	6.75	11.00	3.25	2.50
10	♂	....do	March 22	7.10	11.50	3.38	2.50

46. Euspiza americana (Gm.) Bp.—*Black-throated Bunting.*

Seen in open groves, in company with Blue Grosbeaks and Orioles. I found no nests, although without doubt it breeds on the Rio Grande.

214	♂	Lomita	April 26	6.50	10.75	3.37	2.50
215	♀	....do	April 26	6.25	9.85	3.00	2.25

47. Goniaphea cærulea (L.).—*Blue Grosbeak.*

Common at Lomita, and found breeding in scattered clumps of bushes in open groves. May 24 I took two nests, about three feet from the ground, in kleppeni-bushes,* near a corn-field. They were concealed in the heart of the bushes; were four inches in outside diameter; on the inside two and one-half inches wide by two inches deep; were composed of leaves, corn-husks, and the dried tops of weeds and grasses, and lined throughout with rootlets and a few horsehairs. They had been watched for some time; one contained four eggs and the other three—their full complements. As the fresh eggs lie in the nest, they are of a pinkish shade, but, when blown, become a delicate blue. In shape they are oval, and not, as heretofore described, "equally rounded at either end," one end being decidedly more pointed than the other. In size they vary in length from .88 to .85; in breadth from .65 to .62.

Mr. Bourbois informs me, that, during the harvesting of the first crop, early in July, he frequently meets with nests of this bird attached to corn-stalks, and containing eggs and young. They therefore rear at least two broods of young at Lomita.

167	♂	Lomita	April 22	8.00	12.00	3.75	3.00
194	♂	...do	April 25	7.50	12.00	3.75	3.00
222	♀	....do	April 27	7.50	11.50	3.62	3.00
259	♂	....do	April 30	7.75	12.00	3.63	2.90
497	♂	....do	May 22	7.85	11.75	3.50	3.00
508	♀	....do	May 25	7.50	11.50	3.50	2.87

48. Cyanospiza ciris (L.) Bd.—*Nonpareil or Painted Finch.*

Quite common at Lomita. A half dozen females were shot in the bushes overhanging the water, at Lake San José, a few miles from the ranch, on May 7. No males were observed in their company. Although they undoubtedly breed in that vicinity, we came across no nests.

204	♂	Lomita	April 26	5.85	9.00	2.75	2.25
217	♂	....do	April 26	6.50	9.00	2.80	2.25
241	♂	....do	April 28	5.87	9.00	2.75	2.30
345	♀	....do	May 7	5.50	8.85	2.62	2.00
346	♀	....do	May 7	5.62	8.62	2.62	2.05
347	♀	....do	May 7	5.50	8.75	2.70	2.00

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* Common name of this shrub in the locality.

49. Cyanospiza versicolor (Bp.) Bd.—*Western Nonpareil.*

Obtained but two females of this species at Lomita, and recognized a male, which I did not secure.

348	♀	Lomita	May 7	5.50	8.25	2.50	2.00
383	♀	....do	May 10	5.50	....	2.50	2.00

50. Cyanospiza cyanea (L.) Bd.—*Indigo-bird.*

A few males observed, and several females of this species taken in May. They seemed to be less abundant at Lomita than either of the other species of the genus. No nests found.

271	♀	Lomita	May 1	5.50	8.25	2.50	2.00

51. Spermophila moreleti Pucheran.—*Morelet's Finch.*

Observed first on April 7, while on my way to Lomita, where it is not an uncommon bird, yet its diminutive size and its habit of frequenting low bushes and weeds preclude its frequent observation where there is so much undergrowth. One specimen was shot in a small tree, and about nine feet from the ground, which was the only one observed at such height. It is tame and quite fearless. All those observed were in immature plumage, the males wanting the black jugulum and white throat, and the back and head either wholly fulvous ash or mixed with black, instead of clear glossy black of adult Mexican specimens, while the females were light fulvous ash, with but a tinge of olive, instead of the deep olive fulvous of the adult Mexican type. It is strange that thus far no full-plumaged specimen of this species has been obtained this side of Mexico.

On May 3 I took an adult female and two young, apparently just from the nest. The young were more than half-grown and full-feathered; whole upper parts dark rich brown; under parts fulvous on the sides the feathers dark, tipped with fulvous; tips of wing-coverts light, forming indistinct bars; bill and feet pale, almost white. I have the young preserved in alcohol. I found no nests or eggs of this species.

86	♂	Lomita	April 11	4.38	6.75	2.05	1.85
87	♀	....do	April 11	4.25	6.50	2.00	1.75
187	♂	....do	April 24	4.25	6.62	2.05	1.75
289	♀	....do	May 3	4.50	6.75	2.00	1.80
398	♂	....do	May 11	4.50	6.75	2.00	1.75

52. Pyrrhuloxia sinuata Bp.—*Texas Cardinal.*

Tolerably common at Lomita. It is probably resident in that region, along with the Virginia Cardinal, and breeds fully as early. There is little difference between the habits of the two Cardinals, but the Texas is more confined to open and exposed situations near settlements. It is always shy and suspicious, so that I rarely came upon it unawares.

On April 17, at Lomita, and within a short distance of the river, I flushed a female from her nest, and found four eggs. The nest was about five feet from the ground, among the close-growing shoots of a small ebony stub, standing alone near a brush fence, and not far from the roadway. It was rather compact and small for the size of the bird, being about three and one-half inches in diameter on the outside, with an inside diameter and depth not exceeding two inches, and composed entirely of dried inner bark, grasses, and pliant twigs, with a few rootlets for lining. The eggs had been sat upon a few days. They were a little larger and somewhat more elongated than others taken of the same species, and vary in length from .97 to .92 of an inch, while they are nearly equal in breadth, three measuring .68 of an inch and one .69. In shape they somewhat resemble those of the Virginia Cardinal, but are more round, and are irregularly covered with spots in various shades of brown and lavender, which at the larger end are massed together, sometimes forming a band, but more frequently covering the entire end.

132	♂	Lomita	April 17	8.75	12.00	3.87	4.12
223	♂	....do	April 27	8.50	11.50	3.62	3.85
370	♂	....do	May 8	8.50	11.50	3.75	4.00
385	♀	....do	May 10	7.50	11.00	3.50	3.75
468	♂	....do	May 18	8.75	12.00	3.75	4.00

53. Cardinalis virginianus (Briss.) Bp.—*Cardinal Redbird.*

Very abundant at Lomita; at every turn seen brightly flashing across our path, whether in the dense thickets of the woods or in open chaparral, and always extremely cautious. I discovered no variations from the common form. A large series of nests and eggs were obtained.

330	♂	Lomita	May 6	8.50	11.25	3.38	3.75

54. Pipilo chlorurus (Towns.) Bd.—*Green-tailed Towhee.*

Very few specimens of this bird observed; two obtained in open shrubbery. They undoubtedly breed sparingly about Lomita, but we discovered no nests.

106	♀	Lomita	April 12	Wing 2.95. Tail 3.25.			
216	♂	....do	April 26	7.50	10.25	3.12	3.25

55. Embernagra rufivirgata Lawr.—*Green Finch.*

This was among the first birds we saw at Lomita, and remained constant during our stay. It is quite tame, and confined to low shrubbery. Its song I can describe no better than Dr. Merrill has already done: "a repeated chip,—chip,—chip, begun slowly but rapidly increasing until the notes run into each other," and which, when once heard and identified, is always distinguishable. It feeds upon larvæ and seeds, especially the seeds of the wild-tomato, and begins to breed early.

On April 19 there were brought me an adult male, a young bird more than half-grown and just from the nest, and a nest containing two eggs about to hatch,—all of this species, and obtained in one clump of bushes.

Within the past three seasons large numbers of nests and eggs of this Finch have been secured by Dr. Merrill and myself on the Lower Rio Grande. The doctor first found them in the vicinity of Brownsville, and later I found them abundantly some seventy miles further up the river. The domed nests are situated in the heart of bushes, generally from two to five feet above the ground. They were found in all sorts of open thickets. One I detected close by the roadside, in a clump of bushes, under a small tree; another on a dry knoll, which was covered with cacti, thorny bushes of various kinds, and scattering trees of mesquite and ebony, and in close proximity to nests of the Long-billed Thrasher and the Yellow-billed Cuckoo. Most frequently, however, nests were found in those depressions near woods, where water stands during the wet season, which, when dry, abound with grass hummocks and bunches of rank weeds covered with wild-tomato vines. The nests are nearly round in shape, large for the size of the bird, and constructed of dried weed-stems, pieces of bark, grasses, and leaves,—sometimes with a little hair for lining of the bottom, but more frequently without. The complement of eggs is four, and two or three broods are raised in a season. Several sets of eggs were found in April, but many more early in May, while by the 20th of May embryos were well formed. Dr. Merrill found fresh eggs August 5 near Fort Brown, and others slightly incubated on September 7. The eggs are pure dull white and rounded oval in shape, with the greatest diameter generally much nearer one end than the other. In a large series before me the length varies from .91 to .76 and the breadth from .69 to .60, averaging .84 by .65.

First plumage: above, mixed olive-tawny and brown; wings brown, edged olive-green; wing-coverts tipped and edged tawny; breast same as back; belly tawny; bill brown; feet pale fulvous-brown.

71	♂	Lomita	April 10	6.38	8.37	2.60	2.50
107	—	....do	April 12	6.50	8.75	2.50	2.60
108	—	....do	April 12	6.00	8.50	2.60	2.60
145	♂	....do	April 19	6.25	8.62	2.62	2.75
146	♂ juv.	....do	April 19	....	....	....	......
163	♂	....do	April 21	6.00	8.50	2.62	2.38
191	♂	....do	April 25	6.50	8.50	2.55	2.75
192	♀	....do	April 25	6.25	8.38	2.50	2.38
224	♀	....do	April 27	6.25	8.50	2.50	2.50
225	♂	....do	April 27	6.50	8.75	2.62	2.62
287	♀	....do	May 2	6.00	8.38	2.50	2.37
300	♂	....do	May 4	6.75	9.00	2.62	2.62
331	♂	....do	May 6	6.25	8.50	2.55	2.60
368	♂	....do	May 8	6.50	9.00	2.75	2.75
392	♂	....do	May 11	6.38	8.75	2.62	2.50
423	♂	....do	May 14	6.50	9.00	2.70	2.50

ICTERIDÆ.

56. MOLOTHRUS ATER (Bodd.) Gr.—*Cowbird.*

Winters in numbers on the Rio Grande, but by the first of May is replaced by the dwarf variety.

57. MOLOTHRUS ATER OBSCURUS (Gm.) Coues.—*Dwarf Cowbird.*

This Cowbird, distinguishable from the Northern form in little else but size, arrives in Texas from Mexico in April, and throughout that month is associated with all species of Blackbirds and the other Cowbirds, about cattle-pens, barn-yards, and corn-cribs. This and the Bronzed or Red-eyed are the only ones that remain at Lomita to breed. Its habits are similar to its well-known relative of the North. By the middle of May it commences to lay. Of six eggs before me, three were taken from nests of Hooded Oriole, one from the nest of Bullock's Oriole, one from the nest of the Texan Orchard Oriole, and one from the nest of the Green Finch. In one of the nests of Hooded Oriole was also an egg of the Red-eyed Cowbird (*Molothrus æneus*).

I observe that this Cowbird selects the homes of birds fully as large as itself, and also that the eggs of the intruder do not often exceed in size those with which they are deposited. It would be interesting to know, under such circumstances, which are hatched first. So very few Warblers and other small birds breed on the Lower Rio Grande in proportion to larger ones that it may be less trouble for the Cowbirds to make use of the larger nests. The eggs of this Cowbird vary in length from .80 to .76, averaging a little under .78. In breadth they are very constant, averaging .60.

133	♂	Lomita	April 17	7.75	13.00	4.10	3.00
134	♂	....do	April 17	7.50	13.00	4.00	3.00

58. MOLOTHRUS ÆNEUS (Wagl.) Cab.—*Bronzed or Red-eyed Cowbird.*[*]

More abundant at Lomita than at Hidalgo the previous year. I can add little to the account of the breeding habits of this recent addition to our fauna beyond what Dr. Merrill has so fully given in the *Bulletin* of the Nuttall Club (ii, No. 4, p. 85) and in his recent pamphlet (Notes on the Orn. of Southern Texas from February, 1876, to June, 1878, Proc. Nat. Mus.). I found but three of its eggs, as I left the Rio Grande in the last of May, when the birds had just begun to lay. Two of them were laid in nests of Hooded Oriole, and one in that of the Blue Grosbeak. One nest of the Hooded Oriole contained also one egg of the Dwarf Cowbird, with but one egg of the rightful owner. The first egg was taken May 24. The color of the egg of this species is the faintest bluish-green, similar to that of the Blue Grosbeak, and as fugitive when exposed to the light. Its shape is elliptical, the greatest diameter being very near the centre. In size three eggs average .88 by .70.

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[*] For full descriptions of this bird see Bull. Geol. and Geogr. Surv., vol. iv, No. 1, p. 23.

143	♂	Lomita	April 19	8.00	13.50	4.50	3.25
313	♂	....do	May 5	9.00	15.25	4.62	3.10
314	♀	....do	May 5	8.38	14.00	4.25	3.00
315	♀	....do	May 5	8.50	13.75	4.12	3.00
316	♀	....do	May 5	8.50	13.25	4.00	3.00
317	♂	....do	May 5	9.00	16.00	5.00	3.50
318	♂	....do	May 5	8.90	15.00	4.75	3.00
335	♂	....do	May 6	9.00	15.00	4.62	3.25
336	♂	....do	May 6	9.00	15.00	4.75	3.12
354	♂	....do	May 7	9.25	15.00	4.75	3.25
365	♂	....do	May 8	9.00	15.00	4.62	3.25
386	♂	....do	May 10	9.00	14.50	4.62	3.12
387	♂	....do	May 10	9.00	15.00	4.75	3.12
388	♂	....do	May 10	9.25	15.00	4.75	3.25
443	♂	....do	May 15	9.37	14.75	4.75	3.25
445	♀	....do	May 15	8.50	13.25	4.12	3.00
446	♀	....do	May 15	8.00	13.25	4.12	3.00

59. AGELÆUS PHŒNICEUS (L.) V.—*Red-winged Blackbird.*

A common resident, breeding in the low brush and rank weeds of low places, at all points visited on the Rio Grande, back from the salt-marshes.

60. XANTHOCEPHALUS ICTEROCEPHALUS (Bp.) Bd. — *Yellow-headed Blackbird.*

Erratic in its movements on our southern border, this bird made its appearance at Lomita on April 25 to pick up its share of the corn thrown to the pigs about the corn-crib, and was seen daily for some time. On May 7 it was abundant, but by the middle of May had entirely disappeared. I think none remain to breed, owing probably to the absence of sloughs and marshes, where grow the rushes, their favorite breeding resorts.

61. ICTERUS SPURIUS AFFINIS (Lawr.) Coues.—*Texan Orchard Oriole.*

Quite abundant at Lomita; habits just the same as the true Northern form. Its nest is sometimes pensile, sometimes half-pensile, and composed of nicely woven grasses. I found them breeding at Lomita in numbers next to the Hooded Oriole. Took first set of eggs May 1. The eggs vary in color from greenish-blue to white, and have fewer markings than the other Orioles found there. The average size from a large series is .74 by .56.

119	♂	Lomita	April 15	7.00	9.75	3.00	2.80
120	♂	....do	April 15			2.90	2.85
169	♂ juv.	....do	April 22			2.90	2.85
170	♂	....do	April 22			2.95	2.85

62. ICTERUS BULLOCKI (Sw.) Bp.—*Bullock's Oriole.*

Not uncommon, and breeding at Lomita. Several sets of eggs taken; first, May 3.

150*a*	♀	Lomita	April 19	7.60	9.75	3.50	3.35
457	♂	....do	May 16	8.25	13.00	4.10	3.45
498	♂	....do	May 22	8.00	13.00	4.00	3.45

63. ICTERUS CUCULLATUS Sw.—*Hooded Oriole.*

Most abundant of all the Orioles on the Lower Rio Grande. At Lomita Ranch, the edges of forests and groves, hung with pendent trusses of Spanish moss, afford excellent places for nesting. They were continually peering about the thatched roof of our house and the arbors adjoining for insects. They were more familiar than any of the other Orioles about the ranch.

There is little to add to my former observations. One nest was discovered, in a corn-field, made of Spanish moss, which was interwoven with a couple of leaves of two corn-stalks, which it thus bound together; another was found in a truss of Spanish moss, having dried grasses for lining, instead of the usual dead and black hair-like moss. In several nests were horsehair and tufts of goats' wool. April 25, first set of four fresh eggs was taken; by the middle of May, a majority of the birds were through their first laying; May 25 many eggs were found hard sat upon.

The eggs of this species, like those of most *Icteridæ*, vary greatly in their markings. The larger end is never free from markings, and frequently is covered by them, but more commonly displays them in the form of a band; very rarely is the egg completely covered; occasionally some are devoid of spots on the middle and smaller end. The pencillings and hieroglyphics peculiar to this family are less frequent in this than in the other species. Usually the markings are brown, but, when profuse, black and lilac shades appear. The ground-color also varies, occasionally a blue tinge appearing, though more frequently a buff shade is added to the white.

Found a greater number of eggs of this species this year than the previous year, and, from a large series of sets before me, would increase the average length a little from the former notes, giving it now as .86 by .60. One set of three I found of such extreme lengths, averaging .99, that it is not taken into account in my measurements, since it occurs so seldom.

104	♂	Lomita	April 12	Wing 3.38. Tail 3.85.			
114	♂ juv.	....do	April 14	Wing 3.20. Tail 3.60.			
131	♂ juv.	....do	April 17	Wing 3.20. Tail 3.55.			
150	♀	....do	April 19	6.50	9.00	2.80	2.60
202	♀	....do	April 26	8.00	10.50	3.12	3.62
260	♂	....do	April 30	8.38	10.75	3.37	3.62
261	♂	....do	April 30	8.25	11.00	3.38	3.75
262	♂	....do	April 30	8.50	11.00	3.37	3.75
298	♂	....do	May 3	8.50	11.00	3.50	3.75
477	♂	....do	May 20	8.25	10.62	3.38	3.80
478	♂	....do	May 20	8.50	11.00	3.38	3.80
479	♂	....do	May 20	8.50	10.75	3.38	3.75

64. Icterus auduboni Giraud.—*Audubon's Oriole.*

Found this less abundant than any other species of Oriole at Lomita, but in the denser timber a few always to be seen. It is exceedingly shy, and remains in the seclusion of the forest during the breeding season. In my former notes I gave the proportions in which I found the different species of Orioles represented at Hidalgo. At Lomita, though distant from Hidalgo but a few miles, the proportions were somewhat different, being as follows: twenty *cucullatus* (Hooded), to twelve *affinis* (Texan Orchard), to five *bullocki* (Bullock's), to three *auduboni* (Audubon's).

This year I was fortunate in obtaining, within our limits, nests and eggs of this large Oriole. Two incomplete sets were found early in May, which enable me to identify a complete set of four obtained last year. The latter set was taken at Hidalgo, Texas; the two former, at Lomita. The three nests were found in heavy timber, some ten or twelve feet from the ground, are half-pensile, something like those of the Orchard and Bullock's Orioles, and attached to upright terminal branches. They are composed of dried grasses woven among the growing twigs and leaves, so as to form a matting light and firm. They measure on the inside some three inches in depth and rather more in width.

The eggs are peculiar, resembling those of no other species found in that region. The ground-color is white, covered with fine flecks of brown, giving the egg the appearance of being covered with dust. Over these flecks, and principally at the larger end, are irregular stains and splashes of deeper brown, sometimes mixed with lilac, on which are coarse dark brown or black hieroglyphics. Some have more and larger splashes than others, but none are free from the dark, grotesque lines peculiar to the family. In shape they are less pointed, and in size smaller in proportion to size of bird, than those of other Orioles. The shells are very tender. The nine eggs before me average in size .97 by .71, the largest being 1.00 by .72, and the smallest .96 by .67.

80	♀	Lomita	April 11	9.75	12.75	4.00	4.00
81	♂	....do	April 11	9.75	12.75	4.12	4.12
338	♂	....do	May 7	9.75	13.00	4.05	4.12
352	♀	....do	May 7	9.75	13.00	4.18	4.00
374	♂	....do	May 9	10.50	12.75	4.00	4.37
399	♂	....do	May 11	9.50	12.50	4.00	3.90
417	♂	....do	May 13	9.50	13.00	4.12	4.12

65. Scolecophagus cyanocephalus (Wagl.) Cab.—*Brewer's Blackbird.*

Common at Lomita during April, but not noticed late in May. I found no evidence of its breeding there.

283	♂	Lomita	May 1	Wing 5.20. Tail 4.20.

66. QUISCALUS MACRURUS Sw.—*Great-tailed Grackle.*

During the last few days in March I observed and shot this species at Corpus Christi and about the head of Padre Island. At Lomita it was as abundant as at Brownsville, and more so than at Point Isabel, on the coast. Many fine skins and a large series of eggs were obtained.

57	♂	Lomita	April 9	Wing 7.40.		Tail 9.00.	
121	♀	....do	April 15	Wing 5.70.		Tail 6.00.	
211	♀	....do	April 26	Wing 5.80.		Tail 6.45.	
379	♂	....do	May 9	18.75	23.25	7.62	8.50
380	♂	....do	May 9	17.50	22.50	7.50	8.25
439	♂	....do	May 15	17.75	23.00	7.50	8.60
440	♂	....do	May 15	18.00	23.50	7.50	9.00
441	♂	....do	May 15	17.00	22.50	7.12	8.00
442	♂	....do	May 15	18.75	23.00	7.37	8.75
444	♀	....do	May 15	13.50	18.25	5.85	6.10

CORVIDÆ.

67. XANTHURA LUXUOSA (Less.) Bp.—*Rio Grande Jay.*

The habits of Jays are everywhere much the same, and the Rio Grande Jay, the only form found on the trip, does not differ from species found elsewhere, except in its nesting habits. Of all the birds on the Lower Rio Grande, this is the most mischievous, robbing and despoiling other birds' nests without mercy. It is more abundant about Lomita, owing to the country being less settled, and having more timber than about Hidalgo, a few miles below. Its nest is not easily found, however, for it is always concealed in thickets, or in the heavy undergrowth of dense woods.

I was successful in taking a large series of eggs. Of those obtained early in April, few were freshly laid, while all those obtained in May were fresh, this indicating that a second brood is reared, though I saw no young of the first brood, while numbers of adults were seen daily from April 9 until the last of May. On April 19, the first eggs were taken, two sets being found: one of four with large embryos; the other of five, nearly fresh. The latest set, consisting of four fresh eggs, was found on May 17. The usual number of eggs to a clutch is four, occasionally five. The eggs found this season are a little smaller than those of last year, averaging 1.06 by .81; taken with last season's measurements the average will stand 1.08 by .80. Mixed with the brown markings, a large proportion show shades of lilac quite distinctly; nearly all have the bulk of the markings massed at the larger end.

179	♂	Lomita	April 24	12.00	15.00	4.75	5.50
183	♂	....do	April 24	....	....	....	......
184	♂	....do	April 24	....	....	4.75	5.65
193	♂	....do	April 25	12.00	15.25	4.62	5.50
252	♂	....do	April 29	11.75	15.25	4.75	5.50
253	♂	....do	April 29	11.75	15.25	4.75	5.25
272	♂	....do	May 1	11.75	15.25	4.75	5.50
281	♀	....do	May 1	11.75	14.50	4.50	5.25
302	♀	....do	May 4	11.12	15.00	4.62	5.00
328	♀	....do	May 6	11.50	14.50	4.50	5.00
329	♂	....do	May 6	11.75	15.50	4.62	5.50
490	♂	....do	May 22	11.75	15.00	4.75	5.50

TYRANNIDÆ.

68. Milvulus forficatus (Gm.) Sw.—*Swallow-tailed Flycatcher.*

Not abundant in the heavily wooded districts, but a few breed in the openings and about the cultivated tracts. Their movements are much like those of our Kingbirds; they are very beautiful in flight, the scarlet salmon under their wings and their long graceful tails adding much to their beauty. I found nests of this species in all positions, from ten to fifty feet high, and resembling in structure those of our familiar Kingbird, *T. carolinensis;* but, in addition to the rootlets for lining, they usually have in the bottom some tufts of goats' wool. They arrive in Texas the last of March or 1st of April, and begin to lay in May. On May 27 I found a nest with young several days hatched out.

52	♂	Point Isabel	April 3	....	....	4.90	8.65
78	♀	Lomita	April 10	....	....	....	......
124	♀	....do	April 15	....	....	4.60	6.30
456	♂	....do	May 16	13.00	15.50	4,75	8.00

69. Tyrannus verticalis Say.—*Arkansas Flycatcher.*

Observed first May 7, at Lomita. One was shot at San José Lake in a retama-tree near the water. One or two more were obtained from the same locality. Not abundant.

351	♀	Lomita	May 7	9.00	15.75	4.85	3.50

70. Tyrannus melancholicus couchi (Bd.) Coues.—*Couch's Flycatcher.*

I obtained April 30 three specimens of this bird, in the same grove, at Lomita Ranch, where I obtained a single specimen the previous year. A few were afterwards observed at that point. On May 27, while on our way down the river, and near Santa Maria, I shot a female, which had been attracted to our vicinity by the cries of a pair of Scissor-tailed Flycatchers, who were alarmed at our examination of their nest, which contained young. It is very likely her nest was near. I obtained neither nest nor eggs of this species.

255	♂	Lomita	April 30	10.00	16.25	5.00	4.25
256	♀	....do	April 30	9.50	15.75	4.75	4.00
257	♂	....do	April 30	10.00	16.25	5.12	4.25
510	♀	Santa Maria	May 27	9.00	16.00	4.00	3.75

71. Myiarchus crinitus (L.) Cab.—*Great-crested Flycatcher.*

Found in numbers during April, after which time it leaves the Rio Grande. On May 3 I obtained my last specimen.

68	♂	Lomita	April 10	9.00	13.62	4.37	3.75
166	♂	....do	April 21	8.85	13.25	4.12	3.50

72. MYIARCHUS CRINITUS ERYTHROCERCUS (Scl. & Salv.) Coues.—*Texas Great-crested Flycatcher.*

Most abundant of the genus, and with the exception possibly of the Swallow-tailed, *M. forficatus*, of the whole family, *Tyrannidæ*, on the Lower Rio Grande. I have called this the Texas Great-crested Flycatcher, because, thus far, in that State only, within our limits, has it been observed. For full description of this variety, see Bulletin of the Geological and Geographical Survey of the Territories, vol. iv, No. 1, p. 32, where occurs Dr. Coues's identification of the single specimen I obtained at Hidalgo, Texas, May 9, 1877.

Although found in the chaparral and low, stunted growth of mesquite, yet its home is emphatically in the heavier growths of timber, such as exist above Hidalgo. Its habits are very like those of its near relative, the Great-crested Flycatcher, *M. crinitus*. I can only account for my failure to discover more specimens of this bird on my former trip by my ignorance of its habits and my attention not being particularly directed to it, as it was on this trip, for it is quite common.

This bird belongs to a group the individuals of which resemble each other so closely that identification becomes rather puzzling, and this special variety has given great trouble both in Europe and America as to its classification. In my notes, as referred to above, Dr. Coues gave such a clear treatise on this species that I supposed it would be accepted as final. When, however, Dr. Merrill's "List of Birds observed in the Vicinity of Fort Brown, Texas,"* appeared, Mr. Ridgway, as editor, went again over the ground, comparing the one or two specimens the doctor secured with the large series of skins in the Smithsonian collection, and dissented from Dr. Coues's opinion, already referred to, classifying this prevailing form on the Lower Rio Grande as var. *cooperi* instead of var. *erythrocercus*.

Prior to the recording of my specimen of 1877 this bird had not been known even in Mexico, though it was a well-known form of Central and South America, while var. *cooperi* was known only in Southern and Western Mexico and the contiguous portions of Central America. It is difficult to believe that the same form would be found in Yucatan and Venezuela, and again in the United States, yet pass entirely over so large an intervening country.

In giving his reasons for his opinions, Mr. Ridgway concludes as follows: "The only satisfactory test, however, which I have been able to apply in determining to which race doubtful specimens should be referred, is that of size, as follows:—Var. *erythrocercus.*—Wing, average 3.77; tail, 3.82; bill from nostril, .61; tarsus, .86. Habitat: Eastern Tropical America, from Paraguay to Southern Mexico, but chiefly southward of the latter country. Var. *cooperi.*—Wing, average 4.15; tail, 4.25; bill from nostril, .69; tarsus, .92. Habitat: Mexico, including Rio Grande Valley and Texas, and Guatemala." Now, Mr. Ridgway's sizes of var. *erythrocercus* were obtained from six specimens in the National Museum, and his sizes of var. *cooperi* from eighteen specimens, of which all but three, which are in his own collection, belong to the National Museum. Out of the number, two only were from the Rio Grande, and one of those alone had dimensions given.

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* Proceedings of U. S. Nat. Mus. 1878.

[So far from finding myself obliged to modify in any respect the remarks I made on this subject in Mr. Sennett's former paper, I am more than ever satisfied of the tenability of the position I there took, and which Mr. Sennett's present observations tend further to strengthen. I beg, nevertheless, that those who may be interested in the *Myiarchus* enigma will carefully consider Mr. Ridgway's counter-argument before coinciding with my view. In no event, however, can Mr. Ridgway's proposed combination of names, "*erythrocercus* var. *cooperi*," stand; for *cooperi* was named in 1851 by Kaup, while *erythrocercus* was not described by Sclater and Salvin until 1868.

—E. C.]

There is no notice whatever of my specimen from Hidalgo, Texas, May 9, 1877, which is in the National Museum, and which is the first record of its existence within our limits, and which Mr. Ridgway no doubt examined when he coincided with Dr. Coues as to its identification. That specimen measures as follows: sex, ♀ ad.; U. S. Museum; locality, Hidalgo, Texas; date, May 9, 1877; wing, 3.90; tail, 3.63; tarsus, .85.

It will be seen, had size alone been taken into consideration and the specimen taken into account, it would have appeared in his list of var. *erythrocercus*. I procured by this year's trip twenty-two specimens, a number almost equalling the number examined by Mr. Ridgway of both varieties. I herewith give their sizes, carefully taken from the dry skins.

Trip No.	Sex.	Locality.	Date.	Wing.	Tail.	Bill from nostril.	Tarsus.
69	♂	Lomita	April 10	4.16	3.85	.61	.85
165	♂	....do	April 21	4.10	3.55	.70	.89
235	♂	....do	April 28	3.95	3.95	.66	.80
236	♂	....do	April 28	4.23	4.00	.62	.80
248	♂	....do	April 29	3.90	3.65	.62	.85
249	♂	....do	April 29	4.00	3.85	.61	.82
258	♂	....do	April 30	3.95	4.00	.65	.82
273	♀	....do	May 1	3.85	3.68	.63	.82
274	♂	....do	May 1	4.10	3.85	.59	.83
275	♂	....do	May 1	4.05	3.90	.65	.81
276	♂	....do	May 1	4.00	3.83	.70	.87
292	♀	....do	May 3	3.75	3.62	.60	.80
293	♂	....do	May 3	4.03	3.83	.66	.85
326	♀	....do	May 6	3.90	3.75	.65	.82
355	♂	....do	May 7	4.08	3.85	.61	.87
356	♀	....do	May 7	3.70	3.66	.60	.82
357	♂	....do	May 7	3.98	3.80	.62	.84
358	♀	....do	May 7	3.82	3.60	.62	.87
419	♀	....do	May 13	3.87	3.83	.60	.83
455	♂	....do	May 16	3.93	3.80	.61	.80
490	♂	....do	May 22	4.00	3.75	.65	.88
499	♀	....do	May 22	3.75	3.60	....	....

Averages: wing, 3.96; tail, 3.78; bill from nostril, .63; tarsus, .83.

It certainly will be seen from the sizes above that they come much nearer to those of var. *erythrocercus* than to those of var. *cooperi*. It will be noticed that the lengths I give of tail and tarsus are less than those of Mr. Ridgway's *erythrocercus*, and that the lengths of bill and wing are but a very little more. In the bill alone my series average only .02 above his *erythrocercus*, but .06 under his *cooperi*. I can see no reason for changing the opinion formed last year.

The colors of my specimens are very regular, the upper parts being a dark ashy brown, so slightly tinged with olive that it requires a certain light to distinguish it at all. Instead of its being like the ash of the mixed olive and ash of *Tyrannus melancholicus* (var. *couchi* Bd.), it should rather be called brown, so slight is the ashy shade; nor is it even so light as *M. cinerascens*.

The breeding habits of this bird were, during my second season in Texas, well observed and noted. It is the common and only form of the genus breeding on the Lower Rio Grande, entirely replacing the Great-crested Flycatcher, *M. crinitus*, which leaves for the North in April. From the numbers there found I expect to hear of their reaching into Texas, at least as far as San Antonio and Corpus Christi, and farther even into the State. They nest in hollow stubs or abandoned woodpeckers' holes, at a height varying from five to twenty feet. The nests are lined with a matted felt consisting of soft strips of bark, feathers, hair, and wool, with sometimes bits of snake-skins intermingled. They begin to lay early in May, the number of eggs in a clutch being five or six. When sitting, the birds are not very timid, and, upon being flushed from their eggs, do not fly to a great distance, and soon return to the nest upon the intruder's retreat. On May 16 I flushed a male from a nest and six eggs, a circumstance making it probable that the male assists in the duties of incubation. This single instance of finding a male on the nest was overlooked when I sent the notes which appeared in "Science News" of February 15, where I expressed my belief that the female alone attended to the duties of incubation.

The eggs are marked similarly to those of the Northern form, *M. crinitus*. Sometimes the lines running from pole to pole are fine, nearly concealing the creamy-buff ground-color; in other cases the coloring is massed in long splashes at intervals. In size they are less than those of the Great-crested Flycatcher.

Eighteen eggs before me average .86 by .69; the length varying from .93 to .80, and the breadth from .72 to .67 of an inch.

73. SAYORNIS SAYUS (Bp.) Bd.—*Say's Flycatcher*.

Seen about low bushes in open places in April.

67	♂	Lomita	April 10	7.62	12.90	4.12	3.25
117	♀	....do	April 15	7.50	12.25	4 00	3.25

74. CONTOPUS BOREALIS (Sw.) Bd.—*Olive-sided Flycatcher.*

Only observed at Lomita during May. Not common.

305	♀	Lomita	May 4	7.75	13.00	4.25	2.75
327	♀	....do	May 6	7.37	12.75	4.00	2.62
425	♂	....do	May 14	7.50	13.50	4.25	2.75

75. CONTOPUS VIRENS (L.) Cab.—*Wood Pewee.*

Not uncommon at Lomita, and probably breeds there, although no nests or eggs were taken. Compared with specimens from Erie, Pa., the Rio Grande birds have the brown of wings, tail, and coverts darker, and the whole upper parts tinged with olive, also more yellow on belly.

333	♂	Lomita	May 6	6.50	10.75	3.38	2.62

76. EMPIDONAX ACADICUS (Gm.) Bd.—*Acadian Flycatcher.*

Not rare at Lomita during May, where it probably breeds.

288	♂	Lomita	May 3	6.00	9.25	2.90	2.38

77. EMPIDONAX TRAILLI (Aud.) Bd.—*Traill's Flycatcher.*

Not common, but found occasionally with *acadicus* and *minimus*.

332	♂	Lomita	May 6	5.87	9.00	2.75	2.50

78. EMPIDONAX MINIMUS Bd.—*Least Flycatcher.*

Common at Lomita, generally in company with other species of the genus, in open woodland and the groves near the ranch. Probably breeds there, but I obtained no nests.

362	♀	Lomita	May 8	5.37	8.50	2.56	2.25
410	♀	....do	May 13	5.25	8.00	2.56	2.25

79. EMPIDONAX FLAVIVENTRIS Bd.—*Yellow-bellied Flycatcher.*

Most abundant of the small Flycatchers at Lomita. In a belt of heavy timber, on the edge of what was recently the river-bed, it was always to be seen in numbers, flying about on the lower limbs, singing, or catching insects. I discovered no eggs or nests.

363	♂	Lomita	May 8	5.87	8.75	2.70	2.12
372	?	....do	May 9	5.07	8.07	2.05	2.02
376	♂	....do	May 9	5.50	8.50	2.62	2.00

[GENUS ORNITHION *Hartl.*

Ornithion, HARTL., J. f. O. 1853, p. 35. (Type *O. inerme*, HARTL., *ibid.*, *sp. n.*)
Camptostoma, SCL., P. Z. S. 1857, p. 203. (Type *C. imberbe*, SCL., *ibid.*, *sp. n.*)
Myiopatis, CAB. & HEINE, M. H. ii, 1859, p. 58. (Type *Muscipeta incanescens*, MAXIM., Beit. iii, p. 898.)

In his "Note on the Genus Ornithion of Hartlaub," in P. Z. S. 1873, pp. 576–578, Dr. Sclater concludes that the species upon which the three generic names above cited were respectively established may be "naturally located in the same genus, which is remarkable amongst the Tyrannidæ for its small short compressed bill, without any trace of rictal bristles." At the same time, Dr. Sclater distinguishes four species of the genus—*inerme*, *pusillum*, *incanescens*, and *obsoletum*—the two former being yellow-bellied, the other two having the under parts whitish.

With respect to the *O. incanescens* of his paper, however, it has later appeared that the author was in error in uniting his *Camptostoma imberbe* of Mexico with the Brazilian form earlier described by Maximilian. (See Lawr., Ibis, 1876, p. 497.)

The acquisition of a specimen of *O. imberbe* from Texas is one of the most interesting of Mr. Sennett's results, as this discovery carries the range of the genus much farther north than it was before supposed to extend. —E. C.]

80. ORNITHION IMBERBE (Scl.).—*Beardless Flycatcher.*

[*Camptostoma imberbe*, SCL., P. Z. S. 1857, p. 203, 2 figs. (S. Andreas Tuxtla, S. Mexico; *A. Sallé*).—SCL., Ibis, 1859, p. 444, pl. 14, f. 1.—SCL., Cat. A. B. 1862, p. 215.—LAWR., Mem. Bost. Soc. vol. ii, pt. iii, No. ii, 1874, p. 286 (Mazatlan, San Blas; *A. J. Grayson*).
Elainia (*Camptostoma*) *imberbe*, GRAY, Hand-l. pt. i, 1869, 356, No. 5406.
"*Ornithion incanescens*," SCL., P. Z. S. 1873, p. 577 (in part; confounded with *O. incanescens* of Brazil).
"*Ornithion incanescens* (Max.); *Camptostoma imberbe* (Scl.)," LAWR., Bull. U. S. Nat. Mus. No. 4, 1876, p. 26 (Tehuantepec, Sta. Efigenia; *F. E. Sumichrast*).
"*Ornithion incanescens*," COUES, The Country of July 13, 1878, p. 184 (Rio Grande of Texas; *G. B. Sennett*. First introduced to U. S. fauna).

HAB.—Southern and Western Mexico to the Rio Grande of Texas (*Sallé*, *Sumichrast*, *Sennett*). —E. C.]

SP. CH.—Upper parts and sides of head grayish-ash, tinged faintly with olive, more conspicuously on rump; crown-feathers tipped with light brown; wings and tail brown, edged with hoary white; secondaries and coverts broadly tipped and edged with fulvous-white, the latter forming two broad wing-bars; edge of wing and under wing-coverts light lemon-yellow; under parts ash, light on neck and chin, and very light on belly; a dark band on jugulum and breast; a light lemon tinge from neck down, and same very conspicuous on belly and under tail-coverts; tail double-rounded; 3d quill longest; 1st quill .20 from point of wing; point of wing formed of 2d, 3d, 4th, and 5th quills, which are very nearly equal; 6th and 7th quills longer than 1st; 8th equal 1st; secondaries .30 from point in closed wing; under wings and tail light; under shafts of rectrices white; bill unnotched; upper mandible much curved, brown; under mandible straight, pinkish-yellow, brown at tip; commissure yellowish; feet black.—Length 4.50; extent 7.25; wing 2.12; tail 1.85; bill .28; tarsus .57; whole foot 1.00. Iris brown.

I have little to say of the habits of this species. My single specimen was shot on April 24 in a low bush distant from woods. No others were observed. It was an adult male in fine plumage, and its testes showed the breeding season to be close at hand. Its diminutive size and yellow commissure led me at first to think it the young of some other species, but I fortunately perceived my error, and was careful to preserve what proves to be the best find of the trip, one which adds to our fauna a new genus and species never suspected to occur so far north.

189	♂	Lomita........................	April 24	4.50	7.25	2.12	1.85

[Genus PITANGUS *Sw.*

Tyrannus, Vieill., Anal. d'une Nouv. Ornith. Elém. 1816, p. — (nec Cuv.).
Musicapa, Temm., Man. Orn. i, 1820, p. lxvij (nec Linn.).
Muscipeta, "Flem. 1822" (teste Gray).
Pitangus, Swains., Zool. Journ. iii, 1827, p. 165.
Saurophagus, Swains., Fn. Bor. Am. ii, 1831, App. p. 484. (Type *Lanius sulphuratus* auct.)
Apolites, "Sundev. 1836" (teste Gray).

This is another interesting acquisition to our fauna, for which we are indebted to Mr. Sennett, the genus as well as the species being first taken by him within the boundary of the United States—a "find" which offsets the detection of the related *Myiodynastes luteiventris* in Arizona by Mr. Henshaw.

The birds of this genus are large and handsome Flycatchers, of conspicuous colors, well known and widely distributed in Mexico, Central and South America, as well as in the West Indies. —E. C.]

81. Pitangus derbianus (Kaup) Scl.—*Rio Grande Flycatcher.*

[*Tyrannus sulphuratus*, Swains., Syn. Mex. B. in Philos. Mag. i, 1827, p. 368 (nec *Lanius sulphuratus* Linn.) (Mexico).

Saurophagus sulphuratus, Gamb., Journ. Phila. Acad. 2d ser. i, 1847, p. 39.

Saurophagus derbianus, Kaup, P. Z. S. 1851, p. 44, pl. 36 (Mexico).—Cab. & Heine, Mus. Hein. ii, 1859, p. 62 (Mexico).—Finsch, Abhandl. nat. Ver. Bremen, 1870, p. 329.

Pitangus derbianus, Scl., P. Z. S. 1856, p. 297 (Cordova; *Sallé*).—Scl., P. Z. S. 1859, pp. 45 (Mex. and C. Am.), 56 (Belize), 366 (Xalapa).—Scl., Ibis, i, 1859, p. 438 (Mexico).—Scl. & Salv., Ibis, i, 1859, p. 120 (Central America).—Scl., Cat. A. B. 1862, p. 221 (Mexico and Guatemala).—Gray, Hand-l. i, 1869, p. 357, No. 5425 (Mexico).—Lawr., Mem. Bost. Soc. vol. ii, pt. iii, No. 2, 1874, p. 286 (Mazatlan and Colima).—Lawr., Bull. U. S. Nat. Mus. No. 4, 1876, p. 26 (Tehuantepec).

Pitangus derbyanus, Coues, The Country, July 13, 1878, p. 184 (Texas; *G. B. Sennett.* First introduced to U. S. fauna).

Saurophagus guatimalensis, Lafresn., Rev. et Mag. Zool. Oct. 1852, p. 462 (Guatemala).

Hab.—Central America and Mexico to the Rio Grande of Texas. —E. C.]

Sp. Ch.—Upper parts light brown, tinged olive on the back; all the quills and coverts edged largely with bright cinnamon; crown black, surrounded by white, and partly concealing a large bright lemon- and flame-colored patch; auriculars and stripe from bill through eye to shoulder black; chin and throat pure white; all the rest of under parts and under wings pure lemon of the richest hue; bill and feet black; iris hazel. Length 10.50 to 11.00; wing 4¾ to 5; tail 4 to 4¼; bill 1⅛ to 1¼; tarsus 1.

A genus and species common in Mexico, but new to the fauna of the United States. It leads the Flycatchers on account of its large size and great beauty; and as it honors the Lower Rio Grande with its first appearance, I have chosen to give it the above name, in preference to the misnomer "Bull-headed."

On April 23 a male and female of this species were shot at Lake San José, a few miles from Lomita. Both were shot about four feet up on the trunks of small retama-trees standing in the water, and were clinging to them and working their way down to the water, possibly to drink. They were not particularly shy. On May 3 another female was shot in trees bordering the lake, yet not over the water. One or two more were observed in timber about water-holes. In flight this Flycatcher resembles the Kingfisher. Dissection indicated the approach of the breeding season, and it undoubtedly nests in the large trees of the locality. The only account of the habits of this bird of which I am aware is Col. Grayson's notes, which I quote in full from Mr. Lawrence's "Memoirs of the Birds of Western and North-western Mexico" (page 286).

"This is a common and abundant species, inhabiting the western and northwestern parts of Mexico. I found it equally as common in Tehuantepec, as in the region of Mazatlan, where its loud shrill notes of hip-se-dee, hip-se-dee, may be heard at all seasons of the year, but more particularly during the breeding season, when it is excessively garrulous. It is more frequently met with in the neighborhood of fresh-water streams and lagoons, and I have often observed them dart into the water after water-insects and minnows that were swimming near the surface, not unlike the Kingfisher; but they usually pursue and capture on the wing the larger kinds of Coleoptera and Neuroptera, swallowing its prey entire after first beating it a few times against its perch. They are usually in pairs, but I have also seen as many as twenty about a stagnant pool, watching its turbid waters for insects and small fish, for which they seem to have a great partiality."

"The nest of this species is very large, and its construction differs from all the Tyrannidæ of which I have any knowledge, except *M. texensis*. It is dome-shaped or covered, with the entrance on the side, whilst the other species build a nest saucer-shaped. The nest of the Bull-headed Flycatcher is usually placed in the forks of the branches of very thorny trees, twenty-five or thirty feet from the ground; it is composed of very coarse material of either straw or lichens, sometimes of both; the lining, however, is of firmer and more elastic fibres. Other birds sometimes make their nests in the same or nearest tree; such as *M. texensis*, *C. melanicterus*, and *I. pustulatus*."

"The eggs of this Flycatcher are usually five in number; they are of moderate size, rather lengthened, of a light cream color, with a small reddish speck; the shell is delicate and easily broken."

176	♀	Lomita	April 23	10.75	16.50	5.00	4.10
177	♂	do	April 23	11.00	16.75	4.85	4.15
295	♀	do	May 3	10.50	16.00	4.85	4.10

82. Pyrocephalus rubineus mexicanus (Scl.) Coues. — *Vermilion Flycatcher.*

This species frequents generally the depressions which were formerly river-beds, in which more or less water stands after every shower, and where insect-life abounds to excess, and where the retama-tree flourishes. It is not very common, and I found no nests. The plumage of both sexes varies considerably in intensity, and I think it may require two or three years to come to perfection. I refer to Dr. Merrill's notes in Proceedings of U. S. Nat. Mus. 1878, for description of nests and eggs.

237	♂	Lomita	April 28	6.25	10.50	3.25	2.37
238	♀	....do	April 28	6.25	10.25	3.12	2.62
239	♂	....do	April 28	6.12	10.25	3.18	2.38
240	♀	....do	April 28	6.12	10.25	3.12	2.25

CAPRIMULGIDÆ.

83. Nyctidromus americanus (L.) Cass.—*Pauraque Goatsucker.*

On the evening of April 16 three of us, carrying guns, took advantage of the beautiful moonlight, which was so bright that we could read by it, for a tramp into the woods after anything in the way of game that might present itself. We had hardly entered the road through the woods, when, notwithstanding our loud talking, for we had no expectation of seeing anything so soon, we came upon a bird dusting itself in the roadway. I had slipped into my shooting-coat a few half charges of dust, and although it took some time to withdraw to a sufficient distance to shoot, yet the bird took no notice of us or our conversation. After shooting and picking up the bird, I discovered it to be different from any I had seen; it proved to be *Nyctidromus*, the only one obtained on the trip. During the moonlight nights in May I again ventured forth a short distance from the house on the road in search of these night-birds, and saw several birds fly from the telegraph poles, which I think were of this species. They breed in the more open places among the cactus and scattered bushes along with *C. texensis*—Texas Nighthawk. On dark days I flushed them from thickets in the chaparral, or from copses near the bottom-lands on the edges of the woods. They are very quick in their movements, and difficult to shoot on the wing.

On April 20 I obtained the first set of two eggs. Several others were taken, and all from the bare ground, where they were laid. From the eggs of both trips I obtain the average size 1.22 by .91, the length varying from 1.17 to 1.28, and the width from .90 to .93. Their size and creamy-buff color render them easy of identification. The size of my specimen, an adult male, is, length 13.25; extent .25; wing 7.40; tail 7.60; tarsus 1.05; middle toe .81; middle toe and claw 1.15. It will be seen that the measurements of wing and tail are much larger than Mr. Ridgway gives in Dr. Merrill's notes (Proc. U. S. Nat. Mus.

1878, p. 144). I would refer to this article for full description, synonymy, &c., of this interesting recent addition to our fauna.

Two young not half-grown which I take to be of this species were found on the ground in a thicket on the edge of the woods on April 19. I judge them to be *Nyctidromus* by the long tarsus bare of feathers, by the large ochraceous spots on scapulars and secondaries, and by the central black dashes on the crown. Owing to the quills being not sufficiently grown, the white wing-patch fails to appear. The colors of the first plumage are much as in the adult, but less distinct; the back and crown lighter gray, while the wings show mixed black and ochraceous.

84. ANTROSTOMUS CAROLINENSIS (Gm.) Gould.—*Chuck-will's-widow.*

Dense undergrowth among the heavy timber at Lomita afforded excellent shelter during the day for birds of this family. Here even at midday a subdued twilight prevailed, and these birds often flitted across our vision, more like shadows than living things, so silent and rapid was their flight; so that, although quite common, it was difficult to obtain them. This, too, is their natural breeding resort; but, as they lay their eggs upon the ground, amid such a labyrinth of vegetation the finding of their eggs must be purely accidental, and we were not fortunate enough to find any. About eleven o'clock, on the night of April 16, in the clear moonlight, I saw perched on the top of a tall dead tree what I supposed to be an Owl of some kind, but, upon shooting it, discovered it to be a male Chuck-will's-widow. I am unacquainted with the note of this bird. The sizes given below are measurements carefully taken from my dried specimens; length and extent were taken in the field.

As to markings of my several specimens, it is worthy of note that trip-number 306, a female, has on one side of the tail white patches on the three outer feathers, while on the other side there is but a single white patch upon the outer feather. Also number 339, a male, has the white patches on one side of the tail only, and upon the second and third feathers from the outside. The other three specimens are as given in the books. The variation of two out of five would warn us not to place implicit reliance upon the markings of the tail in determining sex. It will be well for ornithologists to ascertain how constant the tail-markings are. My specimens vary considerably in colors throughout, some being very dark brown, and others very ochraceous. The black stripes of the crown and scapulars vary also in size and number. In but one can the jugular collar be called white; the rest are buff.

97	♂	Lomita	April 12	12.25	25.50	8.45	5.90	Trs. .67
127	♂	....do	April 17	12.50	25.00	8.30	5.70	,, .63
306	♀	....do	May 4	12.50	25.00	8.00	5.85	,, .63
339	♂	....do	May 7	12.00	24.50	8.15	5.45	,, .75
408	♀	....do	May 13	12.50	26.50	8.50	5.90	,, .65

85. ANTROSTOMUS VOCIFERUS (Wils.) Bp.—*Whippoorwill.*

Found in the dense woods at Lomita. Not abundant, but I think they are resident.

73	♂	Lomita	April 10	10.50	20.00	6.50	5.25
83	♀	....do	April 11	9.00	17.50	6.00	4.12
307	♀	....do	May 4	....	....	6.25	5.15

86. CHORDILES TEXENSIS Lawr.—*Texas Nighthawk.*

As common as at Hidalgo the previous season, and is the only Nighthawk of the locality so far as I could learn. In its flight it resembles the Whippoorwill. It does not indulge in the perpendicular descents accompanied by the grating whirr of the wings, so characteristic of *C. virginianus*, Common Nighthawk. It prefers to rest by day in open woodland rather than in dark woods. At all hours in the evening and during moonlight nights it is heard. I obtained many sets of eggs. Found first egg April 26. Fresh eggs found up to May 19. They were always laid on the bare hot ground, with little or no protecting shade.

125	♂	Lomita	April 17	9.00	21.50	7.50	4.25
173	♂	....do	April 23	9.00	21.75	7.38	4.25
213	♀	....do	April 26	8.75	21.00	7.37	4.12
311	♂	....do	May 5	8.75	22.00	7.38	4.25
325	♂	....do	May 6	9.00	22.00	7.62	4.55
390	♂	....do	May 11	8.75	21.50	7.12	4.00
391	♀	....do	May 11	....	....	6.95	4.25
404	♀	....do	May 12	8.87	20.00	6.75	4.00
463	♂	....do	May 17	8.75	21.50	7.25	4.25

TROCHILIDÆ.

87. TROCHILUS COLUBRIS L.—*Ruby-throated Hummingbird.*

About the first of our arrival at Lomita a few of this species were observed about blossoming trees, the only variety of Hummingbird observed on the trip.

66	♀	Lomita	April 10	3.87	4.38	1.80	1.12
90	♂	....do	April 11	3.75	....	1.62	1.12

CUCULIDÆ.

88. CROTOPHAGA SULCIROSTRIS Sw.

[*Crotophaga sulcirostris* [or *sulcirostra*], SWAINS., Syn. Mex. B. in Philos. Mag. i, 1827, p. 440 (Mexico, *Bullock*).—SWAINS., Anim. in Menag., 183–, p. 322, fig. 65 c.—GRAY, Gen. of B. ii, 184–, p. 458.—CASS., Pr. Phila. Acad. iv, 1848, p. 91.—BP., Consp. Av. i, 1850, p. 99.—SCL., P. Z. S. 1856, p. 309.—SCL., P. Z. S. 1859, pp. 59, 368, 388.—SCL. & SALV., Ibis, 1859, p. 135.—SCL., P. Z. S. 1860, pp. 285, 297.—SCL., Cat. Am. B. 1862, 320.—CAB., J. f. O. 1862, p. 171.—CAB. & HEINE, Mus. Hein. Th. iv, Heft i, Bog. 13, Dec. 12, 1862, p. 101 (Mexico).—GRAY, Hand-l. ii, 1870, p. 210, No. 8913.—LAWR., Mem. Bost. Soc. Nat. Hist., vol. ii, pt. iii, No. ii, 1874, p. 292.—LAWR., Bull. Nat. Mus. No. 4, 1876, p. 33.—COUES, The Country, July 13, 1878, p. 184 (Texas, *G. B. Sennett;* first introduced to fauna of U. S.).

Crotophaga semisulcata, Swains., "Anim. in Menag., 183–, p. 346."—Gray, Gen. of B. ii, 184–, p. 458.—Bp., Consp. Av. i, 1850, p. 99.

Crotophaga sulcata, Licht., "Mus. Berol."

Crotophaga casasii, Less., Voy. Coquille, Zool. i, pt. ii, p. 619.—Less., Cent. Zool. 1830, pl. 9.—Less., Tr. Orn. 1831, p. 130.—Tschudi, Consp. Av. ——, p. —. — Tschudi, Fn. Per., Ornith., 1845–46, pp. 41, 256.

Crotophaya casassi, Less., Man. Orn. ii, 1828, p. 11.

Hab.—Texas to Peru. —E. C.]

Sp. Ch. (of my Lomita specimen).—Face naked. Bill at the nostrils .85 high, .37 broad (more than twice as high as broad); nostrils about as in *C. ani.* Gonys straight. Culmen curved from base. Upper mandible with three distinct grooves parallel to culmen. Legs stout, tarsus equal to middle toe and claw, the scutellæ much the same as in *C. ani.* The 5th quill of wing is longest; 4th only a little shorter; 3d .20 of an inch from point; 2d .85 from point, and 1st 1.90 from point. The tail is graduated, the outer quills about 1.75 inches shorter than the middle ones. The color generally is black, with violet steel-blue reflections both above and below, with an olive-brown tinge on belly. The pointed feathers of head and neck metallic reddish-bronze; those of breast, back, and wing-coverts metallic green. Iris brown. Bill black, with gray scales on culmen. Feet black, with grayish scales in patches. Length 14.50; extent 17.00; wing 5.60; tail 7.50; whole bill 1.20, from nostril .80; tarsus 1.40= middle toe and claw.

I have the pleasure of introducing this species to our fauna. Until within a few years its habitat was only known to be Yucatan, Central and South America. The explorations of Grayson, Xantus, Bischoff, and Sumichrast, between the years 1865 and 1871, discovered it to be in Southern and Western Mexico, Mazatlan being the most northern point, to the best of my knowledge, of its record.

A fine adult male of this species was shot May 19 at Lomita while flying about the low bushes in open chaparral. It was very shy, flying in and about the bushes, and was shot on the wing. The appearance of its feet indicates that it was not in the habit of being much upon the ground.

The accounts of the breeding habits of the genus *Crotophaga** are as incomplete and conflicting as those of other members of the family, notably the genera *Geococcyx* and *Coccygus*. Colonel Grayson's notes on the habits of this bird, observed at Mazatlan, being the best at my command, I quote him in full from Mr. Lawrence's "Birds of Western and North-western Mexico," page 292.

"This is a common species in this locality, and throughout western *tierra caliente*. They associate in small flocks of eight or ten, and are fond of picking the ticks off the cattle. It does not migrate. The nest is usually built in a thorny tree or bush, at a moderate height, and com-

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[*The curious reader will find something of interest upon the subject in Sir Wm. Jardine's Horæ Zoologicæ, Nos. I and II, printed in the Ann. Nat. Hist. iv, 1839, pp. 160–171, figg. 1, 2, and iv, 1840, pp. 318–322; reprinted in Oken's Isis, Bd. xxxvii, 1844, pp. 913–918, under the title: Ueber das Betragen der Kielschnabel (Keel-Bils, Crotophaga).—Also, in Prof. Reinhardt's treatise entitled: "Bemærkninger om Redebygningen og Fortplantningsforholdene hos Crotophaga-Slægten"; Kjøbenhavn, 8vo, pp. 31; Aft. af Kgl. dansk. Vidensk.-Selsk. Forh. Jan. 1860. —E. C.]

posed of thorns and dry twigs exteriorly, and lined with fibrous roots. The eggs are usually five, the outside of the shell is rough and white, the inside is green."

It will be noticed that no mention is here made of eggs being laid in one nest by several females, the care of them being shared in common, as recorded of *C. ani* in the West Indies. So near alike are the two species that we should naturally expect their breeding habits would be very similar, and such an extraordinary proceeding as the above would hardly have escaped observation. For habits of *C. ani* see "North American Birds," by Baird, Brewer, and Ridgway, and notes of Mr. Ober in "Catalogue of Birds of Grenada," by George N. Lawrence.

89. GEOCOCCYX CALIFORNIANUS (Less.) Bd.—*Chaparral Cock.*

From the time of our arrival until we left Lomita, this bird was constantly seen. At every turn in the chaparral we came upon one or more; and so unmolested were they that they took little pains to avoid us, being not even so shy as at Hidalgo the year before. We have passed them feeding on lizards, where the road was wide, and they paid no attention to us, but continued their meal. Upon one occasion my assistant and I, while noisily cantering down the road, were attracted by the sight of a Chaparral Cock feeding upon a good-sized lizard close by the roadway. After passing the bird we halted not three rods away from it, concluding to watch its behavior. We remained for some time loudly discussing it, and, finding it too deliberate in making its meal, we left it, apparently oblivious of our proximity.

On another occasion I shot at a Chaparral Cock some eight or ten feet from the ground on a small dead tree. I fired at long range, and upon going to look for my bird found I had missed it, and that it had betaken itself to a stake of a brush fence running close by the tree and a few rods farther off, where it stood eying me. Upon the opposite side of the fence I saw its mate jumping about in a thicket, where, after reaching the top branches, while I remained quiet and concealed all but my head, it commenced calling to its mate. It was distant from me not more than three rods, and I was apparently unobserved by it, although its mate on the fence kept close watch of me while dressing its plumage, that may have been disarranged by my shot. The bird's notes were four or five coos, something like a dove's, the last one long drawn out and ending with a falling inflection. It was with quite an effort that it uttered its notes, head and tail lowering at each coo. At the end of the strain it would stretch up to full height, look all about for a moment or two, and repeat the performance. After observing it full twenty minutes, during which time its mate made no response, I made myself conspicuous by swinging my hat over my head, when they both disappeared, the one in the thicket giving a harsh and loud cry of alarm,—a trill which might be imitated by touching the tongue to the roof of the mouth and forcing the breath through, at the same time making a loud, deep tone. This bird feeds upon berries as well as insects and small reptiles.

From the impenetrable nature of the chaparral, in which it loves to dwell, it is one of the most difficult birds to follow with the gun or for daily observation. Hence the meagre and conflicting information heretofore given of its breeding habits, although it is pretty widely distributed over the southwestern United States. In the spring of 1877, at Hidalgo, Texas, I found one of its nests containing nine eggs, and in my notes stated the full complement of eggs to be from eight to twelve,—fully double the number heretofore recorded. I received letters from several noted field ornithologists who have taken the eggs of this bird, stating that in all probability I would not be able to find another clutch numbering more than six.

Having the good fortune to repeat my trip the following spring, and pushing a few miles further into heavier timber and chaparral, where this bird was abundant, I gave especial attention to it during my stay of over six weeks in the locality. Although an accident laid me up for nearly half of my stay, yet I found a score of nests of the Paisano, as the bird is called there, all containing eggs, young, or both. The largest clutches taken this season are one set of nine, two sets of eight each, and two sets of seven each. Dissection of the parent of one of the sets of seven showed another egg ready for laying. Of the rest of the nests found all contained from one to six eggs each, all fresh or nearly so. The full complement of eggs will stand as eight, occasionally nine. The laying is irregular, often two or three days intervening between the depositing of the eggs. Incubation begins soon after the first egg is laid, and often by the time four eggs are laid an embryo will have started. In the set of nine a young bird had made an opening in one egg, while two of the set were fresh. Incubation and growth of young must be very rapid, for, in a nest containing six young and one egg, which would have hatched in another day, the chicks were graded regularly up to more than half the size of adult. The parent birds are with difficulty found on the nest, owing to their quick sight and rapid movements. When alarmed upon the nest, they utter no cry. The half-fledged young have no fear, and utter no cry when handled or killed.

Their nests were found in all sorts of places, at heights varying from four to eight feet. The junco was not more in favor than the mesquite-, ebony-, or brazil-tree; a large prickly-pear cactus or a thick clump of thorny bushes is often chosen. One nest was near the main gateway; another in a small ebony, quite alone and exposed, close by a footpath, a lack of caution to be accounted for by their being little disturbed in the vicinity of Lomita.

The nests vary in size according to location, being sometimes bulky and again very fragile, but composed always of twigs, with a lining of grasses, and having a depression of about the thickness of the egg. Most of the eggs were found in April; yet with this, as with most birds of this semi-tropical climate, there is much irregularity in the season for breeding, and fresh eggs were obtained up to the last of May. My first clutch was taken April 17, and consisted of five young and three eggs.

I note a greater variation of shape in the eggs of 1878 than in those of the year before, and a decided tendency to a point at one end, although a few are nearly double-rounded. In size, over fifty eggs before me give an average of 1.55 by 1.21, which, taken with the average of those collected the previous year (1.50 by 1.21), gives a general average of 1.53 by 1.21. Their color is opaque white.

90. Coccygus americanus (L.) Bp.—*Yellow-billed Cuckoo.*

A well-known bird, and breeding commonly at Lomita. Instead of choosing damp and shaded places for its nest, as is common with this species in the North, I found none in such places. Ebony-trees near the ranch, mesquites among cactuses, thorny bushes in open chaparral, and open woodland, were favored breeding places. The nest, usually a simple platform of twigs, I sometimes found quite elaborate, and at heights varying from five to thirty feet. I nowhere found it playing the part of a parasite; on the contrary, I found it devoted to the care of its young.

Although I was obliged to make special study of more local and rarer species, enough was seen to enable me to confirm the reports of its irregular laying and hatching. The finding of many sets of more than four eggs, however, must do away with the idea, which has been held, that the first four eggs laid are hatched before any addition is made to their number. I found no perfectly fresh eggs in the same nest with young. In a set of eight, two eggs were on the point of hatching, and there seemed to be a graded variation in the incubation of all, none being quite fresh. In a set of seven, one only was hard sat upon. My impression is that the eggs are laid at intervals of from one to three days, and that when three or four eggs are laid the parent begins to incubate, gradually adding to the number until the set of seven or eight is complete, imitating in this respect her larger relative, the Ground Cuckoo or Chaparral Cock. Twenty sets of eggs were secured. The highest number of eggs found in any one nest was eight; the next seven; the remainder of the sets were made up of six and less. Of over fifty eggs before me, the average reaches 1.20 by .90; the largest specimen being 1.40 by .94, the smallest 1.10 by .83.

246	♀	Lomita	April 29	12.62	17.50	6.00	6.12

PICIDÆ.

91. Picus scalaris Wagler.—*Texas Woodpecker.*

This bird breeds somewhat in advance of the Yellow-faced Woodpecker, and is much less numerous on the Lower Rio Grande. I found it to prefer for nesting hollow living trees to dead stubs.

Although I obtained a large series of skins of this bird, I was unable to examine many nests on account of the superabundance of timber, which increased the difficulty of search. All those first discovered contained young, although the date of my finding them was some ten days earlier than in the previous season. On April 21 a boy brought me a female of this species, taken on the nest, which contained two eggs, the only fresh ones obtained. These two, with the one obtained in 1877, average .81 by .61. From four to six pure white eggs compose a full clutch.

64	♀	Lomita	April 10	7.00	13.00	4.00	2.50
79	♂	....do	April 11	7.75	13.25	4.00	2.50
137	♂	....do	April 18	7.50	13.50	4.00	2.75
141	♂	....do	April 19	7.00	13.00	4.00	2.40
156	♂	....do	April 20	7.50	13.25	4.00	2.75
159	♂	....do	April 20	7.25	13.25	4.50	2.75
160	♀	....do	April 21	7.25	13.25	4.12	2.50
174	♀	....do	April 23	7.00	13.00	4.00	2.40
175	♀	....do	April 23	7.00	13.00	4.00	2.40
353	♂	....do	May 7	7.25	13.00	4.00	2.38
405	♀	....do	May 12	7.00	13.00	4.00	2.25
492	♂	....do	May 22	7.00	13.25	4.00	2.25

92. Centurus aurifrons (Wagl.) Gray.—*Yellow-faced Woodpecker.*

The more abundant of the two prevailing forms of Woodpeckers on the Lower Rio Grande, and very common at Lomita, and as bold and noisy as the Red-headed Woodpecker of the North. Although breeding abundantly at this point, so that I might have secured many sets of its eggs had I chosen, so great labor and time were necessary to get at them, situated as they often were in the heart of large hard-wood trees, and not very accessible, that I forebore making a large collection, especially as I was crowded with rarer species.

The first set of eggs taken was a clutch of six fresh ones on April 17, some two weeks earlier than the first set taken in 1877. On April 21 a nest containing one egg, April 27 two sets, one of four hard sat upon, another of six, four of which were ready to hatch, and May 1 a set of five fresh eggs were taken. From four to six eggs is the usual complement. The average of eggs taken this year is 1.02 by .74.

The numerous holes which I observed the previous season in the telegraph poles, and which I inferred might be nests of Woodpeckers, I found to be excavations made by the birds in search of a large species of borer that works in the dry wood.

105	♂	Lomita	April 12	....	....	....	......
128	♀	....do	April 17	....	....	....	......
136	♂	....do	April 18	10.50	17.50	5.25	3.50
244	♀	....do	April 28	9.50	16.50	5.00	3.00
334	♂	....do	May 6	10.00	16.50	5.12	3.12
496	♀	....do	May 22	....	....	....	......

STRIGIDÆ.

93. STRIX FLAMMEA AMERICANA (Aud.) Coues.—*Barn Owl.*

Common on the Lower Rio Grande, nesting in the steep banks of the river in places usually quite inaccessible. I have often wondered what became of the birds and their eggs in case of a sudden rise of water such as I saw in April.

94. BUBO VIRGINIANUS (Gm.) Bp.—*Great Horned Owl.*

At Lomita I obtained two specimens of this bird and observed several others. They are much lighter in color than Northern specimens; otherwise I noticed no variation.

100	♀	Lomita....................	April 12	21.00	53.50	15.50	8.50

95. SCOPS ASIO ENANO (Lawr.) Ridgw.—*Rio Grande Screech-owl.*

[*Scops enano*, COUES, The Country, July 13, 1878, p. 184. (Rio Grande of Texas; *G. B. Sennett.* First introduced to U. S. fauna.)

I give the identification of this form entirely upon the authority of Mr. Ridgway, who has made a special study of this family. —E. C.]

I was fortunate this season in securing several specimens of an Owl which have been recognized by Mr. R. Ridgway as this variety,—a Mexican form not before recognized within the United States, and I believe it to be the only variety of *Scops asio* on the Lower Rio Grande. Nothing differing from the habits of our Northern form was observed; nor did I see any in red plumage. The measurements given below of my specimens were carefully taken from the dried skins, with the exception of length and extent, which were taken in the flesh.

Last year I found a set of three eggs, which I gave in my notes (Bull. U. S. G. & G. Survey, vol. iv, No. 1, p. 40) as "? *Scops asio* var. *macallii*," the bird not having been taken in hand.

I did not succeed in obtaining any eggs this season, but captured a half-grown young with its parent in the same locality where I obtained my set of three eggs last season. The eggs average 1.37 by 1.16.

Just as I am about to send this MS. I receive a set of five eggs of this Owl, taken by Mr. Bourbois from one nest, on his ranch at Lomita, about April 1. They measure 1.28 by 1.12; 1.28 by 1.16; 1.31 by 1.11; 1.28 by 1.14; 1.30 by 1.13.

99	♂	Lomita...........	April 12	9.00	22.00	6.00	3.25	Trs. 1.35
103	♂	....do	April 12	8.75	18.50	6.00	3.30	,, 1.40
118	♂	....do	April 15	8.50	21.50	6.15	3.35	,, 1.25
277	♂	....do	May 1	8.15	21.50	5.85	3.25	,, 1.20
402	♀	....do	May 11	8.00	22.00	5.95	3.25	,, 1.20
494	♂	....do	May 22	9.00	22.00	6.00	3.20	,, 1.35
489	♀ juv.	....do	May 22	......	....	......	......	....

Specimen No. 489 has the iris greenish-yellow.

96. Glaucidium ferrugineum (of N. Am. writers).—*Ferrugineous Owl.*

[*Glaucidium ferrugineum*, Coues, Amer. Nat. vi, 1872, p. 370 (Arizona, *C. Bendire;* first introduced to U. S. fauna).—Coues, Key N. A. Birds, 1872, p. 206 (the same).—Ridgw., in Bd., Brew., & Ridgw., Hist. N. A. B. iii, 1874, p. 85.—Lawr., Mem. Bost. Soc. Nat. Hist. vol. ii, pt. iii, No. 11, 1874, p. 297 (Mazatlan).—Lawr., Bull. U. S. Nat. Mus. No. 4, 1876, p. 37 (Tehuantepec).—Coues, in Sennett, Bull. U. S. Geol. Surv. Terr. iv, No. 1, 1878, p. 40 (full description of Texas specimens).

Note.—The perplexing species of *Glaucidium* have of late been so extensively investigated by Mr. Sharpe and Mr. Ridgway, with such notable disagreement in many particulars between these two leading authorities on the genus, that it is scarcely possible for one who has made no special study of the case to decide upon the nice points of nomenclature at issue. I therefore only venture to cite a few references of undoubted applicability to the form now well known to occur in the southwestern United States. —E. C.]

Not uncommon at Lomita, but from its small size not readily seen in heavy timber. Its note, a clear whistle quite difficult to follow, was often heard during April and May. A female captured April 9 contained eggs nearly ready to be laid. My two specimens are reddish-brown; the female redder than the male.

63	♀	Lomita	April 9	6.50	14.25	3.90	2.70
111	♂	do	April 14			3.65	2.65

FALCONIDÆ.

97. Circus cyaneus hudsonius (L.) Coues.—*Marsh Hawk.*

Only observed at Corpus Christi the latter part of March.

98. Elanus glaucus (Bartram, 1791, or Barton, 1799) Coues.—*White-tailed Kite.*

[*Falco glaucus*, Bartram, Trav. Fla. orig. ed. 1791, p. 290.—Barton, Fragm. N. H. Penna. 1799, p. 11 (author strictly binomial; likewise post-Linnæan).
Elanus glaucus, Coues, Pr. Phila. Acad. 1876, p. 345.—Coues, Birds Colorado Valley, i, 1878, p. 593.
Milvus leucurus, Vieill.
Falco dispar, Temm.
—E. C.]

Shot an adult specimen near Santa Maria on our way down. It was sitting on a tree in the chaparral near the roadside, and appeared not very shy. It was prepared in the cart while moving along, and the body was accidentally thrown out without examination, so that sex remains undetermined.

511	—	Santa Maria	May 5	16.25	42.25	12.50	7.00

Iris red. Tarsus 1.35. Middle toe 1.15.

99. ELANOIDES FORFICATUS* (L., 1758) Coues.—*Swallow-tailed Kite.*

The first day after our arrival at Corpus Christi, while prospecting on the bluffs just outside of the town, four of this species came flying over within range, and we obtained two of them. They were the only ones observed during the season.

4	♂	Corpus Christi	March 21	22.75	51.00	17.00	13.25
5	♀	do	March 21	23.00	50.00	17.50	13.15

100. ACCIPITER FUSCUS (Gm.) Bp.—*Sharp-shinned Hawk.*

Two or three only observed at Lomita.

154	♂	Lomita	April 20	12.00	22.00	7.00	5.75

101. ACCIPITER COOPERI Bp.—*Cooper's Hawk.*

A great scarcity of Hawks at Lomita; only one of this variety obtained.

74	♂	Lomita	April 10	19.00	31.50	9.00	7.75

102. FALCO COMMUNIS Auct.—*Peregrine Falcon or Duck Hawk.*

While cruising about Nueces Bay, near Corpus Christi, on March 24, we saw this Hawk in pursuit of a Coot, which it captured, and flew with to a small shell island near by, to devour. By means of our skiff and the cover of a few weeds on the island, we got within range and obtained it. It was a female with eggs undeveloped.

17	♀	Corpus Christi	March 24	19.50	45.00	14.50	7.00

103. FALCO SPARVERIUS L.—*Sparrow Hawk.*

A few specimens seen at Lomita in April.

104. ANTENOR UNICINCTUS HARRISI (Aud.) Ridg.—*Harris's Buzzard.*

[*Parabuteo unicinctus* var. *harrisi*, RIDGW. *apud* BD., BREW., & RIDGW., Hist. N. A. B. iii, 1874, p. 250. Type of genus *Parabuteo;* intended for *Antenor*, named on p. 248.

Antenor unicinctus var. *harrisi*, RIDGW. *apud* MERRILL, Proc. U. S. Nat. Mus. i, Oct. 2, 1878, p. 154. —E. C.]

This bird is resident on the Lower Rio Grande, and was more abundant than any other of the family. I found in the crops of those I obtained mice, lizards, birds, and often the Mexican striped gopher

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[* See Pr. Phila. Acad. 1876, p. 345, and Bull. U. S. Geol. Surv. Terr. iv, No. 1, 1878, p. 42.—E. C.]

(*Spermophilus mexicanus*), proving them active hunters, instead of the sluggish birds they appeared the year before at Brownsville. They are silent, and not very shy. Young from the egg are covered with down, more plentifully on crown and back than elsewhere; are colored white on under parts, shading to buff, and ochraceous on back and head, and are very pretty little chicks. Dissection of a female on April 11 discovered an egg almost ready to lay. On April 22, two sets of eggs were taken four or five miles from Lomita, one twenty-five feet high in an ebony-tree, the other twenty feet high in a mesquite. Each contained three eggs hard sat upon. On May 12, a nest situated some thirty feet high contained two young several days out of the egg, and an addled egg. On May 25, from a nest some twenty feet high, three young were taken. Three, then, is evidently the full complement of eggs. Both parents assist in the duties of incubation and care of the young, being sometimes fearless in protecting them. The eggs are a dull white, and almost, if not quite, free from markings, these consisting of a few small brown specks. As is usual with most Hawks' eggs, the lining is rich green. The average of seventeen eggs, including Dr. Merrill's with my own, is 2.06 by 1.64.

82	♀	Lomita	April 11	22.00	47.00	14.50	10.00
247	♀	....do	April 29	21.50	46.50	15.00	9.75
403	♀	....do	May 11	22.00	47.00	14.50	9.50
406	Juv.	....do	May 12	....	....	....	....
407	Juv.	....do	May 12	....	....	....	....
506	♂	....do	May 25	21.00	44.00	13.25	9.50
507	♀	....do	May 25	....	....	14.25	10.00

105. BUTEO PENNSYLVANICUS (Wils.) Bp —*Broad-winged Buzzard.*

Not uncommon at Lomita during April. It is probable that some remain there to breed. On April 11 we saw fifty or more flying about over the woods and in among the trees. We shot seven or eight, and might have taken more. They were in various stages of plumage, and were no doubt migrating. A few were taken in May. I give measurements of but two.

93	♀	Lomita	April 11	13.50	34.00	11.50	7.00
94	♂	....do	April 11	15.25	35.00	10.75	6.25

106. BUTEO ALBICAUDATUS, V.—*White-tailed Buzzard.*

[*Buteo albicaudatus*, COUES, The Country, July 13, 1878, p. 184, 1st column, near the top (Rio Grande of Texas, *G. B. Sennett;* first introduction to U. S. fauna).—BREWER, The Country, July 13, 1878, p. 184, 1st column, near the bottom (Rio Grande of Texas, *J. C. Merrill;* second introduction to U. S. fauna).

For the description of this species, with a very full synonymy, see RIDGW. *apud* MERRILL, Proc. U. S. Nat. Mus. i, Oct. 2, 1878, pp. 154–157. —E. C.]

On March 27, 1878, I shot a fine full-plumaged female of this species as she was flying with her mate over a small island in Lagoona Madre, near Corpus Christi Bay, the first specimen of this large Hawk taken within our limits. I took a set of its eggs, however, the year before, a few miles from Brownsville, wrongly identifying them as *Archibuteo ferrugineus.*

In May, 1878, while at Lomita Ranch, Dr. Merrill wrote me from Brownsville of his just taking two eggs of the same species and a bird. Our two specimens were identified about the same time in Washington, and reported in the same number of "The Country," July 13, 1878. The remarks in my notes of 1877, therefore, about the two eggs found near Brownsville, must illustrate this species, instead of *A. ferrugineus*, which still remains unknown to the Lower Rio Grande.

The dimensions of my bird, taken while in the flesh, are as follows: Length 20.50; extent 56.50; wing 17.50; tail 8.00; culmen 1.10; tarsus 3.35; middle toe and claw 2.50. Iris hazel; cere pale green; bill light at base, black at tip; feet yellow. Dissection showed the ovaries greatly excited, the largest egg being three-eighths of an inch in diameter.

This bird is not uncommon about the sand ridges near the coast. For nesting it selects the Yucca or Spanish bayonet, which there attains at best a height of ten or twelve feet, and fills up the entire top with its bulky structure of sticks and twigs. The two eggs, taken from separate nests by Dr. Merrill, are a trifle smaller than my clutch of two taken the season before. The four eggs average 2.37 by 1.89.

107. POLYBORUS THARUS AUDUBONI (Cass.) Ridg.—*Audubon's Caracara.*

This species, although seen less frequently at Lomita than about Brownsville, is not uncommon. The much taller growth of timber there allows it to build its nest much higher than at Brownsville. April 21, two eggs were taken from a nest, forty feet high, in a hackberry-tree. They were hard sat upon, and the parent did not leave them until the nest was nearly reached. One of the eggs is the lightest I have seen, the larger end showing mixed brown and white, and a few dark blotches being about the centre. On May 14, from a nest at least twenty feet high, were taken three half-grown young. The old birds were very fierce, but the young offered no resistance. No cry was uttered by either old or young. When placed upon the ground, the young birds could just hop about. Their crops were filled with mice. Their plumage is as follows: Crown dark brown, the feathers finely edged with reddish; primaries almost black; secondaries brown; back, tail, and scapulars light brown, edged largely with rufous; neck all around, throat, jugulum, and tail-coverts buff; breast more rufous; belly streaked brown and ochraceous; thighs, sides, and shoulders brown, with rufous edgings; legs yellow; toes plumbeous and yellow; cere orange; bill blue, tipped yellowish-white; iris brown.

A young just from egg was brought me. It is covered with coarse hair-like down and light buff all over, except crown, wings, and a line down the back, which are black.

Two or three eggs are laid in a clutch. My two eggs average 2.31 by 1.78, which, with Dr. Merrill's measurements, give an average of about 2.30 by 1.80 inches.

6	♀	Corpus Christi	March 21	24.00	52.00	16.75	8.75
123	♂	Lomita	April 15	21.00	48.00	15.00	7.75
360	♂	....do	May 7	20.50	....	14.75	7.75

CATHARTIDÆ.

108. CATHARTES AURA (L.) Ill.—*Turkey Buzzard.*

Common at Lomita in company with the Black Vulture. Its eggs are laid upon the ground in the dense woods.

109. CATHARTES ATRATUS (Bartr.) Less.—*Black Vulture.*

Very common. I have never found this bird or the Turkey Buzzard breeding in communities, as has been recorded, nor did I, like Mr. Dresser, find it nesting in trees. Its eggs were laid upon the ground or in hollow logs in the woods.

COLUMBIDÆ.

110. COLUMBA FLAVIROSTRIS Wagler.—*Red-billed Pigeon.*

Through the kindness of Dr. S. M. Finley, U. S. A., who was stationed at camp near Hidalgo, and a good observer of animal life, I obtained valuable information concerning the arrival and departure of the Pigeons. In answer to my enquiries in regard to this species, he gave the following from his note-book for 1878: "First noticed on January 24th, in flocks; about the middle of February they were seen in the woods in pairs and cooing. The last seen of them in 1877 was the latter part of November. These Pigeons were seen several times consorting with tame Pigeons in the ebony-trees in the neighborhood of the village of Hidalgo." This bird therefore is resident on the Lower Rio Grande about ten months in the year. The remaining two months it is probably in the more central parts of our continent, wandering in flocks from place to place in search of food.

On April 9—the day after my arrival at Lomita—I went to Hidalgo to make arrangements about mail, supplies, &c. About a mile above the village, on familiar collecting-ground of the season before, I discovered a Red-billed Pigeon on her nest in a thicket, and about eight feet from the ground. It was not until I had approached to within arm's length that she rose, and, tumbling heavily into the bushes, fluttered away over the ground in capital feint of injury, in order to attract attention away from the nest. The nest was made of twigs, was frail, saucer-shaped, and contained a single nearly fledged young. This bird breeds irregularly and lays several times in a season. I found nests during the whole time of my stay, containing eggs and young in all stages of development, but in no case did a nest contain more than one egg or young. The parents are fond and affectionate, and both assist in incubation. Their food when I saw them was chiefly the hackberry fruit.

The young from the egg have the upper parts plumbeous and sparsely covered with dark hair-like feathers. Under parts are pale and naked.

The half-grown young have plumage on the body like the adult. Head and flanks do not become feathered until bird is nearly fledged, and in half-grown young just commences to show. From a large series of eggs I find them to average 1.55 by 1.10, the length varying from 1.60 to 1.45 and the breadth from 1.18 to 1.03.

58	♂	Lomita	April 9	Wing 8.00.		Tail 5.50.	
76	♀	....do	April 10	14.10	24.50	7.88	5.00
122	♂	....do	April 15	....	....	8.00	5.15
180	♀	....do	April 21	....	....	7.45	5.00
296	♂	....do	May 3	14.00	24.00	7.75	5.25
223	♂	....do	May 6	14.50	25.00	7.75	4.90
473	♂	....do	May 19	14.00	24.00	7.87	5.00

111. ZENÆDURA CAROLINENSIS (L.) Bp.—*Carolina Dove.*

Not as common at Lomita as I found it at Hidalgo, but still common, and breeding everywhere in open woodland. But one set of eggs was found on the ground in a corn-field. All the others were in trees and undergrowth. The eggs of this trip average 1.06 by .81

112. MELOPELIA LEUCOPTERA (L.) Bp.—*White-winged Dove.*

More abundant at Lomita than all the other Pigeons combined, and when they have begun breeding, all day long the air is filled with the music of their cooing, drowning out the notes of most other birds. They are the last of the doves to come in the spring, and according to Dr. Finiey, they leave about November. On April 8, the day of our arrival at Lomita, they first appeared, gradually increasing in numbers until the middle of the month, when the open groves and woods were alive with them. Upon their arrival they proceed at once to select nesting-places. By the 1st of May eggs were found. They were as tame as the Carolina Dove at the ranch, and were seen daily among the Blackbirds about the corn-crib, picking up the corn. The color of the eggs varies from white to cream, the latter prevailing, and two is the number laid. From a large series the size averages 1.14 by .88; the largest is 1.22 by .93, and the smallest 1.05 by .85.

135	♂	Lomita	April 18	12.00	19.50	6.25	4.50
155	♂	....do	April 20	12.00	20.00	6.75	4.60
182	♀	....do	April 24	....	....	6.20	4.40
285	♂	....do	May 2	11.75	19.50	6.50	4.25
438	♂	....do	May 15	11.50	19.00	6.25	4.35

113. Chamæpelia passerina (L.) Sw.—*Ground Dove.*

Not abundant about Lomita, though occasionally seen. I think they seek a more open and cultivated country.

234	♂	Lomita	April 28	6.75	10.75	3.38	2.25
483*a*	♀	....do	May 22	6.87	10.75	3.37	2.60
509	♂	....do	May 25	7.00	11.00	3.50	3.00

114. Æchmoptila* albifrons (Bp.) Coues.—*White-fronted Pigeon.*

Dr. Finley reports the arrival of this Pigeon at the vicinity of Hidalgo and Lomita about the middle of February, its departure having taken place in November. Although it is less numerous than the Red-billed Pigeon, yet, by its peculiar note, it is easily distinguished from all other species, and can thus be readily obtained. We heard it daily. It is so much more retiring in its habits than other Pigeons, that were it not for the peculiarity we mention, it would be met with very seldom. It frequents the dense and heavy growth of timber, and long and frequent were our endeavors to find its nest. By the 8th of May we had given up the task, and I gave orders to my assistants to shoot all of this species they could find, in hopes of obtaining females, as up to this time none but males had been secured, and but few of them, as we had refrained from shooting many specimens, in order to secure nests and eggs. A few females were afterwards obtained, but it naturally happened that we took more males, who alone made the cooing, and thus discovered to us their whereabouts. A fortunate circumstance, however, occurred. A boy having found in a hole in the bank of the old river-bed three kittens belonging to a wildcat, picked up one of them, and being frightened by the old cat, ran with it to Pancho, my Mexican assistant, who went immediately to secure the mother and the remaining kittens. He chose for ambush a dense growth of alder-like shrubbery in the bottom-land, within easy range of the hollow, and cut away the stalks to have a full view of it, trusting to the return of the mother, who was not at that time with her young. After waiting some time, his attention was attracted by a White-fronted Pigeon's flying from a nest further back in the shrubbery. Knowing how anxious I was to get a nest of this bird, he cut a way through the bushes to obtain a clear view of the nest, which he discovered contained two eggs, and then returned to his retreat to watch for both prizes. The Pigeon which he had frightened away returned first and was shot. While he was carefully packing away the bird, nest, and eggs in his bag, the old cat stole away one of her kittens. He concluded to take the remaining one without further delay, and brought the prizes home to me, by whom he was received with great satisfaction. The two kittens were put out to nurse with a cat of our house, who received them kindly.

[* See Bull. U. S. Geol. Surv. Terr. iv, No. 1, 1878, pp. 48–50.—E. C.]

The two eggs obtained enabled me to identify two others that were brought in with a lot of the White-winged Doves'. The nest was situated in the forks of the bushes, about five feet from the ground, was flat and quite large for a Pigeon's nest, and composed of the dead branches, twigs, and bark of pithy weeds.

The habits of this bird, from my observations, differ very materially from those of the same species, by other observers, in other localities.

In Bull. U. S. Nat. Mus. No. 4, 1876, prepared by Geo. N. Lawrence, Mr. F. E. Sumichrast says of this bird, as he found it at Tehuantepec: "Quite common in the west of the isthmus; frequents the woods with preference; perches little, and goes almost always in pairs."

In Proceedings Boston Soc. of Nat. Hist., June 7, 1871, Col. A. J. Grayson says of the bird as found on the Tres Marias Islands, Western Mexico: "This dove seems to be identical with the species found throughout entire Western Mexico, and is very abundant in the Marias. It is commonly found upon the ground, in the thickest part of the woods; it also lays its eggs upon the ground, with but little pretension to forming a nest. It is entirely solitary in its habits, rambling about in the woods in search of various kinds of seed upon which it subsists, and occasionally uttering its peculiar coo-oo-rr." "Our table was often well supplied with this delicious game. The flesh is nearly as white as that of the quail, very tender and juicy."

Again, in Mem. Boston Soc. ii, 1874, prepared by G. N. Lawrence, Col. Grayson gives an account of habits as follows: "This 'ground dove,' as its name indicates, is usually met with upon the ground in search of its food, or sometimes resting upon low branches, or old logs, and always in the thickest woods, out of which they are seldom seen. It walks and runs with great facility upon the ground, whilst its flight is always low amidst the bushes or underbrush, as if to conceal itself, and not long continued, usually alighting upon the ground beneath a massive canopy of underbrush, where it continues to walk or run to elude pursuit, or search for its food. When suddenly started from its retreat, the wings whir, accompanied by a whistling sound, very similar to that of the wood-cock. Its habits are solitary, never congregating into flocks, and only during the breeding season do we ever find a pair together. Differing from all our American doves, it deposits its eggs upon the ground, forming scarcely any nest; the eggs are two, and white; the young soon follow the mother, before being able to fly, like some of the gallinaceous birds."

During both seasons that I passed on the Rio Grande, I saw this bird upon the ground but once, and it was then feeding upon some corn that was scattered in the roadway, and, so far from its remaining near or on the ground, its habit is to frequent the high branches of tall trees; indeed, on this account almost every specimen shot was more or less injured in falling, a number being too much so to save; and I have already spoken of its building quite a large nest at some distance from the ground. Its eggs I could hardly call white, rather a light drab, or better perhaps a light olive drab. The tenderness of this bird's skin, and the ease with which its feathers pull out, exceed that of any Pigeon I ever prepared. It is usually fat and most excellent eating.

The sizes of the four eggs are as follows: 1.14 by .89; 1.12 by .88; 1.16 by .83; 1.15 by .85; averaging 1.14 by .86.

89	♂	Lomita	April 11	12.00	18.75	6.25	4.50
172	♂	....do	April 23	12.25	18.50	6.25	4.50
308	♂	....do	May 5	11.75	18.25	5.75	4.00
309	♂	....do	May 5	11.50	18.25	5.75	4.75
324	♂	....do	May 6	12.50	19.00	6.00	4.75
366	♂	....do	May 8	12.00	19.00	6.25	4.75
367	♀	....do	May 8	11.75	18.50	6.00	4.50
400	♂	....do	May 11	12.25	19.25	6.00	4.00
408*a*	♀	....do	May 13	12.00	18.25	5.75	4.50
425	♂	....do	May 14	12.25	19.25	5.90	4.50
467	♀	....do	May 18	12.00	18.50	6.00	4.40

Specimen No. 467 has the iris yellow, with orange tinge.

CRACIDÆ.

115. ORTALIDA VETULA Wagl.—*Texan Guan or Chachalac.*

Pre-eminently a bird of the woods, and Lomita without doubt is the heart of its very limited habitat in the United States. Here it is resident; and among the heavy timber and dense undergrowth it breeds in seclusion, secure from its enemies. A more intimate acquaintance with this bird enables me to give a better description of its notes than the attempt in my former memoir. The notes are loud and uttered in very rapid succession, and those of the female follow the male's so closely, while so well do they harmonize, although in different keys, that I mistook the first note of one for the last note of the other. It really utters but three syllables, thus: "cha-cha-lac," instead of four, "cha-cha-lac-ca," as given before. It also has a hoarse, grating call or alarm-note, uttered in one continuous strain and without modulation, something like *kak-kak-kak.* Generally this bird is seen in trees, but on one occasion four or five were seen running about on the ground after the manner of chickens when freed from a coop. It does not breed in communities, but in isolated pairs, and from all accounts raises but one brood in a season, unless the nest is despoiled, when it will lay another clutch. The clutch almost invariably consists of three, rarely less. On the 10th of April we obtained fresh eggs, and on the 20th sets were generally full and fresh, after which time they contained embryos. The eggs are exceedingly hard to drill. The chicks are hatched well coated with down, and they leave the nest as soon as hatched, the old ones leading them into the thickets, where they are very hard to capture. I had the pleasure at the ranch of seeing six hatch under a hen. The little ones looked and acted exactly like chickens, picking up the corn-batter thrown to them, running in and out from under the hen's wings, and jumping upon her back. Four of the six died within the first two weeks, but the others lived and thrived. A few are domesticated every year at almost every ranch, and they become inconveniently familiar, getting about under foot, jumping upon tables, beds, etc.

The young from the eggs are thickly covered with down. Upper parts mixed ash, fulvous, and brown, with a black line from the crown to the tail and a black patch on the forehead; under parts pure white, with the exception of the jugulum, which is fulvous ash, meeting the same colors above. When three or four weeks old, the fulvous ash and white become tawny, and the black only shows on the crown and forehead.

The first of May moulting begins. I secured a large series of eggs and skins. The eggs average 2.30 by 1.60; the largest 2.45 by 1.70 and the smallest 2.10 by 1.50. Of the twenty-two skins preserved I only give in the list those measured in the field.

201	♂	Lomita	April 25	23.00	27.00	8.50	9.75
269	♂	....do	May 1	24.00	27.00	8.50	10.50
270	♀	....do	May 1	22.50	25.50	8.00	10.50
291	♀	....do	May 3	22.50	25.50	8.00	9.50
371	♂	....do	May 9	23.50	28.00	9.00	10.75
474	♀	....do	May 19	19.75	....	8.50	9.25
493	♂	....do	May 22	23.00	27.00	8.50	10.25
495	♀	....do	May 22	22.00	25.50	8.50	9.75

Specimen No. 371 weighed 1¼ pounds.

MELEAGRIDÆ.

116. MELEAGRIS GALLOPAVO L.—*Mexican Turkey.*

At Lomita this bird is common. On the night of the 16th of April we must have flushed fifty from their roosts in tall elm-, ash-, and hackberry-trees. By day we occasionally came upon them feeding. My assistant, Mr. Sanford, secured four out of a flock of seven or eight that he came across, while feeding, in broad daylight. Their principal food was at this time the wild-tomato, which attains about the size of a cranberry, and which they devoured whole, together with insects and larvæ. At the time of our arrival most of them were in worn plumage, and moulting began by the 1st of May.

From such observations as I could make during my trip to the Rio Grande in 1877, I believed the form of *Meleagris* belonging to that region to be the true *gallopavo*, formerly called *mexicana*. Dr. J. C. Merrill, in his notes of Southern Texas, 1876 to 1878, page 159, says: "Birds taken here (Lower Rio Grande) present the characters of *var. Mexicana* well developed." On this trip (1878) I had abundant opportunity to study the Turkey, and brought home two fine skins of males which weighed in the flesh over twenty pounds each, besides the tails and tail-coverts of two others. One of the birds is now in the National Museum, and has tawny tips to coverts and tail, being as dark a specimen as any found on the Lower Rio Grande.

The lighter and more typical form from that section I retain in my collection, and I think that even lighter forms exist at Lomita than I obtained.

I have very recently compared all of my specimens with those in the National Museum, and together they form a regular graded series from the type *gallopavo*, which has the tips of tail and tail-coverts tawny-white, to the Eastern United States type, which has tips as dark as the feathers above the subterminal band. I have also compared my specimens with skins from Missouri, Michigan, Virginia, and Florida. From a careful comparison of them all, I observe no geographical variations that will hold good excepting the coloring of the tips of the tail and the upper tail-coverts. The dark forms extend in the Southwest through Missouri, and, I think, Indian Territory and Northern Texas; the intermediate are found along the coast and back to the foot-hills from Corpus Christi in Texas to Vera Cruz in Mexico; while the lightest forms are found on the high tablelands of New Mexico, Arizona, California, and throughout Mexico. Professor Baird says: "The true wild bird of Eastern North America always has the tips of the tail-feathers and upper tail-coverts of a chestnut-brown color; the Mexican species and its descendant of the barn-yard never exhibits this feature." He also draws the line between the wild bird of the Eastern United States and the tame Turkey by throwing all the light or tawny-colored ones into the barn-yard. The same rule applies to the Mexican Turkey. All Lower Rio Grande specimens, therefore, must be held as *gallopavo*, or a var. *intermedia* established—an alternative not to be desired.

This bird scratches together a few leaves for a nest in the dense woods. We fortunately secured two full sets of eggs, one of twelve and the other of fifteen, and a third nest with but a single egg remaining among the débris of shells and feathers, which plainly told the story of the ravages of the Mexican coyote. The first set was taken on April 24, and contained chicks peeping in the shell. The set of fifteen obtained April 26 were fresh. The one egg of the despoiled nest was still later and nearly fresh. The eggs have a cream ground-color. On the set of twelve the markings are numerous, and consist of light-brown specks covering the whole surface, to which are added larger spots of darker brown at intervals. On the set of fifteen, one of which is of abnormal size, the markings are fainter, giving a decided light color to the eggs. The single egg of third set is still lighter and has but few markings. The average size of the twenty-eight eggs is 2.43 by 1.86; the largest 2.50 by 1.90; the smallest 2.33 by 1.72; abnormal egg 1.80 by 1.50.

110	♂	Lomita	April 13	44.00	62.50	18.50	14.00
421	♂	....do	May 14	30.00	54.00	17.00	13.00
462	♂	....do	May 17	44.00	63.00	19.25	15.00

PERDICIDÆ.

117. **Ortyx virginiana texana** (Lawr.) Coues.—*Texas Quail.*

Common at Lomita, coming into the enclosures of the ranch at all times, feeding about the corn-crib, with Blackbirds and Pigeons, or whistling its familiar "bob-white." Parts of several sets of eggs were found in the borders of the corn-fields. A set of thirteen was run into by the breaking-plow. Average size about same as last year, 1.20 by .93.

140	♀	Lomita	April 19	9.50	14.50	4.25	2.25
430	♂	....do	May 15	9.25	13.75	4.25	3.00
472	♂	....do	May 19	9.50	14.00	4.25	2.40
475	♂	....do	May 20	9.25	14.00	4.25	2.50
488	♂	....do	May 22	9.50	14.40	4.25	2.60

118. **Callipepla squamata** (Vig.) Gr.—*Scaled Partridge or Blue Quail.*

The foot-hills of the Rio Grande, about one hundred miles back from the coast, are the eastern limits of this bird, as well as of the Cactus Wren and the Yellow-headed Titmouse. The covey observed by Dr. Merrill near Fort Brown were probably stragglers. Dr. Finley, a careful observer of game birds, never saw them about the camp, two miles above Hidalgo and five below Lomita, where he was stationed for two years. The first rise of ground in going up the river occurs at Lomita Ranch, and here we often saw these beautiful birds running about; but although we frequently collected a mile or two below the hill, there we never saw them, and not even in the fertile and heavily wooded lowlands in the vicinity of this hill did we observe them. A few miles up from Lomita and back from the river, near the water-holes, rises are numerous, covered with thin poor soil, where cactuses and scrubby thorny bushes grow, and here the Blue Quail abounds.

They are poor birds for sport, as they do not lie to dog, and are with great difficulty flushed into flight. We saw them take wing but a few times, and then only when completely surprised. On the approach of danger, they run very fast from one cover of thorny bushes to another, in irregular courses, according to the convenience of cover. Their tawny-white crests are erect as they run, and they make a very fine show. They are excellent eating. The sexes are nearly alike; the males, however, have much more dark-russet on the belly than the females. On the 16th of May, an adult with brood of newly hatched young were observed, but they were too quick of movement to be obtained, and disappeared in the brush. On the 22d of May, near the buildings of the ranch at San José Lake, Mr. Sanford shot a fine male, which was on the brush fence forming the enclosure. In searching among the weeds where the bird fell, we found a nest and sixteen fresh eggs. The nest was under the edge of the fence, and was simply a saucer-like depression in the ground, with leaves for lining. The eggs are peculiar, their markings distinguishing them at once from those of the Texas Quail. The white ground-color is speckled light ochraceous. Sometimes the specks are large and plain, giving the egg a decided yellowish-brown cast; at others, the specks are fine, but at no time is the egg entirely free from them. The markings tend more to the larger end than to the smaller. A stain of yellow ochre also appears, in splashes, more or less on each egg. In shape they are more elliptical than the Common Quail's, *O. virginianus.* The length varies from 1.27 to 1.15; the breadth from .98 to .93; giving general average of eggs 1.21 by .96.

161	♂	Lomita	April 21	10.75	15.00	4.50	3.25
196	♀	....do	April 25	10.50	15.00	4.50	3.25
197	♂	....do	April 25	10.75	13.50	4.60	3.25
212	♀	....do	April 26	10.00	14.50	4.40	3.25
230	♂	....do	April 27	10.75	15.00	4.40	3.25
231	♂	....do	April 27	10.50	15.00	4.12	3.25
232	♀	....do	April 28	10.50	15.25	4.50	3.00
242	♀	....do	April 28	11.00	15.00	4.50	3.00
243	♂	....do	April 28	11.00	15.12	4.62	3.00
299	♂	....do	May 4	11.00	15.37	4.60	3.25
310	♀	....do	May 5	9.75	14.50	4.40	3.00
384	♂	....do	May 10	11.00	15.25	4.60	3.50
401	♂	....do	May 11	10.50	15.25	4.50	3.25
458	♂	....do	May 16	10.00	15.00	4.60	3.25
459	♀	....do	May 16	10.00	14.50	4.50	3.12
469	♀	....do	May 19	10.50	14.75	4.50	3.50
470	♂	....do	May 19	10.50	14.75	4.50	3.50
486	♂	....do	May 22	11.00	15.50	4.75	3.50
487	♂	....do	May 22	10.25	14.50	4.40	3.25

CHARADRIIDÆ.

119. CHARADRIUS FULVUS VIRGINICUS (Borck.) Coues.—*Golden Plover.*

A number seen at Corpus Christi during the storm on March 20.

120. ÆGIALITIS VOCIFERA (L.) Cass.—*Kildeer Plover.*

Common on the Lower Rio Grande. Obtained two full sets of eggs and a set of young at Lomita.

The young, a few days from egg, have the upper parts mixed black, tawny, and ash; forehead and line through eye white; line from bill under eye to back black; jugulum black; under parts white; flanks and sides rufous. The eggs have the drab ground-color speckled and splashed, sparsely at the small end, but heavily elsewhere, with black, intermingled with which are seen clouded dark spots and brown and greenish-yellow spots. One set has larger eggs than the other, but eight eggs give an average of 1.51 by 1.08.

HÆMATOPODIDÆ.

121. HÆMATOPUS PALLIATUS Temm.—*Oyster Catcher.*

Abundant about the northern point of Padre Island, but not observed at Brazos nor Point Isabel, probably owing to want of shallow oyster-beds. I am told they are seen at the lower end of Brazos Island. On March

29, while exploring the extensive mud-flats in Lagoona Madre, close to the head of Padre Island, I came upon a nest and three eggs of this bird. When I found the nest there was no bird near it, and I left to return in an hour or so, when there was still no bird near. I took the eggs, and as I was about to leave I noticed a pair of Oyster Catchers flying back and forth at some distance off; but as Gulls and Terns were also flying about, whose eggs resembled these somewhat, I was still in doubt as to their identity. The construction of the nest, however, was so peculiar that I was pretty well convinced of its owner, and when I came to prepare the eggs I was left no longer in doubt. I found them with chicks about ready to hatch. One I parted in halves to obtain the chick entire, whose feet and bill were undoubted evidence of the species.

The nest was situated on dry mud a rod or so from the water, and was simply a slight depression, of the size of a small tea-plate, lined with shells and pieces of shells; none of them were larger than an inch in diameter, and most much smaller. They were chiefly small oyster-shells, and were placed more on the sides than at the bottom of the nest. No particle of grass or anything else but shells composed the nest. What was strange to me, was, that on the island where I found it, not a shell or a piece of one could be seen, and these must have been brought by the bird itself from the adjacent shell-islands or oyster-beds. This was the only nest found on the island.

The young, about ready to leave the egg, is covered with long, coarse, hair-like feathers; upper parts are partly black tipped with fulvous or tawny, and partly fulvous tipped with black; under parts white; bill and feet white. The eggs have a drab ground-color, on which are scattered irregularly indistinct and clouded spots and splashes of dark slate, on which are dark-brown and black dashes. These spots are located at one end as much as at the other. The shape is elliptical, with one end more pointed than the other. They measure 2.25 by 1.52; 2.20 by 1.56; 2.15 by 1.54.

24	♀	Corpus Christi...	March 25	19.00	37.50	11.00	3.90	Bill 3.40

122. STREPSILAS INTERPRES (L.) Ill.—*Turnstone.*

Common about the sand and shell beaches of the northern part of Padre Island during the last of March. I saw them again when I took the steamer, June 1, at Point Isabel and Brazos Island. They are not shy. They probably breed in those localities, although I obtained no eggs.

RECURVIROSTRIDÆ.

123. RECURVIROSTRA AMERICANA Gm.—*Avocet.*

Seen in small flocks about Corpus Christi Pass up to April 1. All the specimens were in changing plumage, the fulvous and cinnamon just beginning to show on their necks.

124. Himantopus nigricollis V.—*Stilt.*

A few seen in company with Avocets at Corpus Christi Pass during the last days of March. They were in changing plumage.

SCOLOPACIDÆ.

125. Macrorhamphus griseus (Gm.) Leach.—*Red-breasted Snipe.*

A few seen at Lomita during high water on May 15.

126. Calidris arenaria (L.) Ill.—*Sanderling.*

A number of scattered groups seen at Corpus Christi on March 20, and a few noticed up to April 1, the end of my stay on the coast.

127. Limosa fedoa (L.) Ord.—*Great Marbled Godwit.*

A few observed on the flats about Nueces Bay, near Corpus Christi, during the last days of March. They were moulting.

128. Totanus semipalmatus (Gm.).—*Willet.*

Very common about the margins of Corpus Christi and the mud-flats of Lagoona Madre during our stay there, ending April 1.

129. Numenius longirostris, Wils—*Long-billed Curlew.*

Common about the flats and shores of Corpus Christi Bay and whole lower coast of Texas.

TANTALIDÆ.

130. Tantalus loculator L.—*Wood Ibis.*

During the rise in the river, caused by heavy rains, in the middle of May, at Lomita, a large flock of these birds was observed and a number secured. After the waters had receded, and the weather became dry and hot, no more were seen.

500	♂	Lomita	May 23	38.00	69.50	19.50	6.00
501	♀	....do	May 23	35.00	66.50	18.00	6.00
502	♀	....do	May 23	36.00	69.50	19.00	6.00

131. Plegadis guarauna Gm.—*White-faced Glossy Ibis.*

While at the northern end of Padre Island, on March 29, a flock of these Ibises were seen flying over the flats.

My paper of 1877 contains a very full account of the habits of this beautiful species as observed near Brownsville, including the identification of *P. thalassina* Ridgw. as the young.

132. Platalea ajaja L.—*Roseate Spoonbill.*

On the day after our arrival at Corpus Christi, during a storm, Mr. Sanford went out to a point at the junction of the Nueces and Corpus Christi Bays, where he saw four of these birds on the mud-flats, then covered with about six inches of water. He obtained three of them, all fine males, in full plumage.

On the cars, between Brownsville and Point Isabel, we saw a flock of a dozen fly out of the marshes, where they undoubtedly breed.

1	♂	Corpus Christi	March 20	35.00	55.00	16.00	4.25
2	♂	....do	March 20	31.00	....	15.25	4.50
3	♂	....do	March 20	31.75	54.00	15.25	4.40

ARDEIDÆ.

133. ARDEA HERODIAS L.—*Great Blue Heron.*

Very numerous about Corpus Christi Bay. Breeds abundantly on the islands in the Nueces Bay and the Lagoona Madre, near the head of Padre Island. There low growths of prickly-pear cactus and shrubbery abound, which are chosen by them for nesting purposes, in preference to timber, quite as convenient to their feeding-grounds. Associated and breeding with them were Great White and Reddish Egrets. Sometimes a shell island would be found, where bushes grew higher than one's head, but these were neglected by the Herons for lower growths; in no case was a nest found over four feet from the ground. Last year I found their nests on Padre Island on the tops of scrub-oaks at a height of eight feet from the ground. Occasionally we came across a nest upon the ground. On March 24, up Nueces Bay, the nests contained one and two eggs each, and occasionally three. March 27, on Bird Islands, Lagoona Madre, the nests contained two, three, and four each, in all degrees of freshness, and in one case young. The birds at this time were very shy, leaving their nests before we came within gunshot. This species is the most wary of the family. Our boatmen gathered pailfuls of different Herons' eggs, which, after some qualms, I tasted and found very good. We cooked them in various ways, and ate them daily during our cruise. The average size of a large series of eggs is 2.52 by 1.85; the largest being 2.73 by 1.92, and the smallest 2.29 by 1.80.

46	♂	Corpus Christi	March 30	Length 50.50	Wing 21.00	Bill 6.50
47	♂	....do	March 30	Length 50.50	Wing 21.00	Bill 5.90

134. HERODIAS EGRETTA Gm.—*Great White Egret.*

Common up the Nueces River, near Corpus Christi. Breeding in company with Great Blue and a few Reddish Egrets. Nests of twigs and weeds about one foot in diameter, and placed on bushes from one to two feet from the ground. On March 24 nests contained from one to four fresh eggs each. Occasionally this bird was seen about the river and water-holes near Lomita during April and May. The eggs average 2.16 by 1.60.

135. GARZETTA CANDIDISSIMA (Gm.) Bp.—*Little White Egret.*

Occasionally seen about Corpus Christi Bay, but not found breeding.

136. HYDRANASSA TRICOLOR (Müll.) Ridgw.—*Louisiana Heron.*

A few seen on the flats up the Nueces River the last of March, and a number in the lagoon near Point Isabel April 3.

137. DICHROMANASSA RUFA (Bodd.) Ridgw.—*Reddish Egret.*

On March 24 I discovered a few nests of this bird on a small shell island at the mouth of the Nueces River near Corpus Christi. They were on the ground under bushes, and in the low branches of bushes, whose tops contained nests of the Great Blue Heron and the Great White Egret. Laying had but just commenced, there being but one egg in each of two nests, and some nests were not yet completed. In Lagoona Madre, and some twenty-five miles or more distant from Corpus Christi, I found the Reddish Egret breeding in great numbers. In this lagoon, some twelve or more miles from the northern end of Padre Island, are two islands of very modest dimensions, called "Bird Islands," from the number of birds frequenting them. As we dropped anchor off the larger and more southern one, on March 27, thirty or forty White Pelicans lifted from the point farthest from us, soon followed by a hundred or more Brown Pelicans, frightened by our flapping sails, while great numbers of Herons were standing and flying about and above the island in every direction. The glass brought to view great numbers of Gulls and Terns on the shores, and heads and necks of Herons stretching up from every bush on the island. The shores of the island are sand, the highest points about six feet from the water-level, and the vegetation a few brake-like bushes as high as one's head, in clumps, a few straggling and stunted yuccas, great patches of low prickly-pear cactuses, mingled with which were a few stunted thorny bushes, and in low places rank grasses. Our first step on shore introduced us to myriads of mosquitoes, an enemy we had little anticipated, for we had not before met with them, and and before we left we found them extremely troublesome. They gathered so thickly about and upon us, and that, too, under a broiling midday sun, that we were several times obliged to retreat to the water to brush them off and take breath. In the large bushes near the point where we landed we found a number of Great Blue Herons' nests, but no others. But in the low cactus patches upon the centre and highest part of the island were hundreds of Reddish Egrets, many of which were in white plumage, standing and sitting on their nests. They were not shy, and would allow us to approach within easy range before taking wing. About one in five was white, and before taking eggs we secured several white ones on nests. I was prepared to find the white ones breeding, as I had already found almost fully developed eggs in specimens I had taken. The nests were everywhere upon, under, and about the low-growing cactuses, many being upon the ground, and none more than a foot from it. They were composed of small sticks and grasses, were about ten inches in diameter, with little depressions. Some were vacant, but the majority held from one to three eggs each, the greater number less than three, while but a few had four, the full complement. A few of these Egrets had both red and white upon wings and tail, and I secured one of them. The Great Blue Heron was the only other Heron breeding upon the island, but Gulls and Terns were numerous. Upon the other and smaller island, the Reddish Egret was not found breeding. The only other place where we found them breeding was on one of the Pelican Islands of Corpus Christi Bay, where on March 30 a few were seen building nests in company with the Great Blue Heron. Average of over 50 eggs is 2.00 by 1.50; the largest is 2.12 by 1.55, and the smallest 1.90 by 1.48.

Eleven specimens of birds prepared, but they were so very fat that the result is very unsatisfactory. I did not take their measurements in the flesh.

138. FLORIDA CŒRULEA (L.) Bd.—*Little Blue Heron.*

A few noticed about Nueces Bay during the last days of March, and again at Point Isabel April 3. Less abundant and less gregarious than other Herons on our southern border.

139. BUTORIDES VIRESCENS (L.) Bp.—*Green Heron.*

Two or three of this species seen in the tall brakes near the mouth of the Nueces River. At Lomita I occasionally saw one on the banks of the river, where bushes had lodged near the water from caving.

359	♂	Lomita............................	May 7	19.50	27.50	7.25	2.60

140. NYCTIARDEA GRISEA NÆVIA (Bodd.) Allen.—*Night Heron.*

Large flocks of this bird were seen mornings and evenings flying about and feeding on the grass-flats of Lagoona Madre, near the head of Padre Island. They are also about the water-holes in the vicinity of Lomita. On April 23 I obtained a full-grown young.

141. BOTAURUS MUGITANS (Bart.) Coues.—*Bittern.*

I did not find it common anywhere. At Lomita one was shot in May about the water-holes.

GRUIDÆ.

142. GRUS AMERICANA (L.) Ord.—*White Crane.*

Seen on the grass- and mud-flats near the head of Padre Island during the latter part of March.

RALLIDÆ.

143. GALLINULA GALEATA (Licht.) Bp.—*Florida Gallinule.*

Common about the mouth of the Nueces River in March, and in April and May a number were seen about the water-holes near Lomita.

232	♀	Lomita	April 28	13.00	21.25	6.75	2.75
234	♀	....do	April 28	13.00	21.50	6.75	3.00

144. FULICA AMERICANA Gm.—*Coot.*

Resident on the Rio Grande, but not noticed breeding in the water-holes about Lomita. They are much more common about the salt marshes near the coast.

ANATIDÆ.

145. ANSER HYPERBOREUS Pall.—*Snow Goose.*

Seen in flocks at Corpus Christi and Padre Island during the last days of March.

146. DENDROCYGNA AUTUMNALIS (L.) Eyton.—*Autumnal Tree Duck.*

First noticed early in May, in pairs, at Lomita, looking for nesting places. Soon after it became quite common. During the mating season it is found about in trees of open woodland, and very tame. It nests in hollow trees without regard to nearness of water. I was shown the nest from which a set of twelve eggs was taken the season before. It was in an ebony-tree in an open grove, near the houses of the ranch, and much frequented; was about nine feet from the ground, in a hollow branch, with no lining but the chips from the rotten wood. I am of the opinion that but one brood is reared in a season, for they do not lay eggs until June or July, and by October are off for the Tropics. Late in August, the young not full grown are seen about the corn-cribs picking up the refuse corn, at which time Mr. Bourbois says they afford most excellent eating.

This bird does not alight in the water as do other Ducks, but on the land, and wades about in shallow water for food. When corn is nearly ripe, it alights on the stalks, strips the ears of their husks, and pulls the grain from the cob, making this its chief food during the season. I never saw it skulk in grass for cover, but always take wing and fly to the woods, or to some removed open point by the water. It is a pretty sight to see this bird on some dead stub, pluming itself, its color and shape being very handsome.

284	♂	Lomita	May 2	20.50	37.50	9.75	3.00
297	♀	....do	May 3	19.75	36.50	9.90	3.00
321	♀	....do	May 5	19.75	36.00	9.50	3.00
322	♂	....do	May 5	21.00	38.00	10.00	3.00
460	♀	....do	May 16	20.00	37.50	9.50	3.00
461	♂	....do	May 16	21.00	38.50	10.25	3.25

147. ANAS BOSCHAS L.—*Mallard.*

Seen at the mouth of the Nueces River on March 23, in company with Gadwalls.

148. CHAULELASMUS STREPERUS (L.) Gray.—*Gadwall; Gray Duck.*

Seen about the Nueces River in the latter part of March.

149. MARECA AMERICANA (Gm.) Steph.—*American Widgeon.*

Seen about the Nueces River in the latter part of March; a few observed at Lomita in April, and one specimen secured.

138	♂	Lomita......................	April 18	20.50	34.00	10.50	4.00

150. SPATULA CLYPEATA (L.) Boie.—*Shoveller.*

A few seen about the water-holes near Lomita during April.

151. FULIGULA AFFINIS Eyton.—*Lesser Blackhead.*

Great numbers seen in Corpus Christi Bay during the last days of March.

152. FULIGULA FERINA AMERICANA (Eyton) Coues.—*Redhead.*

Secured several of these Ducks at the water-holes of the grass islands, at the head of Lagoona Madre, near Corpus Christi Bay, during the last of March.

PELECANIDÆ.

153. PELECANUS TRACHYRHYNCHUS Lath.—*White Pelican.*

Common at the northern part of Padre Island, up to the time of our leaving, April 1. I am told many remain there during the whole year, but in greater numbers during the winter months. On May 16, at Lomita, we saw a flock of eight fly over. In this connection I will mention that my assistant, Mr. Sanford, found this bird breeding in Grant County, Minnesota, the same season of his return from the South, and secured its eggs for me. This is perhaps the most southern point of its breeding thus far recorded.

154. PELECANUS FUSCUS L.—*Brown Pelican.*

Very common about Corpus Christi Bay. On March 30 we visited two small shell islands, covering about three acres each, called "Pelican Islands," standing alone out in the bay. On one of these, Brown Pelicans were breeding in great numbers, their nests completely overspreading a third of the island. They were built on stout stiff weeds, low bushes, and on the bare shells and sand; were composed of sticks and lined with green grasses and weeds. None were more than a foot from the ground, and in some places so close together that it was difficult stepping among them. Most of them contained three eggs; a number contained incomplete sets of two, while but two held four eggs. All were fresh or nearly so. Outside of the nests, upon the ground, and probably thrown out by the birds themselves, were many eggs, most of which were of last year, and still whole, but which, upon being broken, gave forth a fearful stench. We took a pailful of the finest eggs.

We estimated the Brown Pelicans on this small island to be fully five thousand. No other birds were found breeding here, although when we approached it Gulls, Terns, and a dozen or more White Pelicans were on the upper point; and we found a few old nests of the Great Blue Heron, which were occupied by Brown Pelicans. On the island adjoining no Pelicans were breeding, but about a dozen nests of Great Blue Herons were found, and on the low prickly-pear cactuses a few new nests of the Reddish Egret.

GRACULIDÆ.

155. ?GRACULUS MEXICANUS (Brdt.) Bp.—*Mexican Cormorant.*

While cruising about Corpus Christi Bay numbers of cormorants, probably of this species, were seen lining the narrow sand-bars in the shallow parts of the bay. They were too shy for us to obtain.

PLOTIDÆ.

156. PLOTUS ANHINGA L.—*Anhinga; Water Turkey.*

My first experience with this bird was on the evening of April 7, just as we reached the camp at Edinburgh, on our way up the Rio Grande to Lomita. A flock of two hundred or more was first noticed, high up in the air, coming in the direction of the camp; and when directly over it they began to lower, at last alighting in a large patch of willows on the river-bank close by. We started after them at once, and secured as many as we wished. They were so tame that we could stand under the willows and shoot them, with half charges of dust, directly over our heads. We could not drive them away from their roost for any length of time, those not injured coming back immediately to their former place; in this respect quite unlike the reports of the same bird in Florida. In the morning we watched them circling about over their roost, gradually getting higher and higher, until, when well up and looking about the size of large Blackbirds, they started off up the river. In May we saw them about the lakes at Lomita, where they were evidently breeding, but we found no nests.

LARIDÆ.

157. LARUS ARGENTATUS Brünn.—*Herring Gull.*

Seen about Corpus Christi, during our stay there, in the last of March. Not noticed at Padre Island, but at the mouth of the Nueces they were very numerous, being next to the Ring-billed Gull in point of numbers. In the slaughter-house yard on the flats out of Corpus Christi I saw the novel sight of Gulls pulling away at carrion, after the manner of Turkey Buzzards, in company with hogs and Vultures. The Herring, Ring-billed, and a few Laughing Gulls were represented. As we approached they would lazily fly up, and again alight, allowing us to come quite near. Upon driving off all the birds, we observed the Gulls to be the first to return.

158. LARUS DELAWARENSIS Ord.—*Ring-billed Gull.*

In company with other Gulls and Terns, at the mouth of the Nueces River, during March, and the most numerous among them.

159. LARUS ATRICILLA L.—*Laughing Gull.*

Very common everywhere upon the coast. In the fresh waters of the rivers few were seen. They breed in Lagoona Madre and about Padre Island in great numbers, but on the 1st of April had not begun to lay.

160. STERNA ANGLICA Mont.—*Marsh Tern.*

Perhaps the least numerous of all the Terns on the coast excepting *S. superciliaris*, Least Tern, yet not uncommon. We saw it daily about the head of Padre Island during out stay, and it undoubtedly breeds there.

161. STERNA CASPIA Pallas.—*Caspian Tern.*

On our cruise about Corpus Christi Bay, I met with this bird on the shell reefs at the head of Lagoona Madre, where it was common, and about equalling in number the Royal and Marsh Terns. The next day, March 27, on the lower end of one of the Bird Islands, great numbers of Caspian and Marsh Terns were observed. They were mating, and dissection showed eggs to be developing, and they no doubt had selected this island for their nesting place. They held exclusive control, along with the Pelicans, of one end of the island, while the Laughing Gulls were installed at the other. On the same day, on the other "Bird Island," we saw this species in company with Marsh and Forster's Terns. We did not notice any Caspians in the fresher waters of Nueces Bay. Of the several skins prepared, I took measurements of but one.

32	♂	Corpus Christi.....	March 27	Length 21.50	Wing 17.00	Tail 6.00

162. STERNA MAXIMA* Bodd.—*Royal Tern.*

Found in numbers about the head of Padre Island. In the channel between Padre and Mustang Islands is a barren sand island, on which the Gulls and Terns breed yearly in large numbers. At the time of my observations, the Royal was most numerous. Laying had not yet begun.

[* For the change of name of this species, see SAUNDERS, P. Z. S., 1876, p. 655; COUES, Bull. Nutt. Club, iii, No. 3, July, 1878, p. 142.—E. C.]

163. Sterna cantiaca Gm.—*Sandwich Tern.*

Common on the coast side of Corpus Christi Bay. I was too early for their laying, as well as that of all the Gulls and Terns.

164. Sterna forsteri Nutt.—*Forster's Tern.*

Common about Corpus Christi and Nueces Bays and Lagoona Madre.

165. Sterna superciliaris antillarum (Less.) Coues.—*Least Tern.*

A few noticed along the coast, but seen daily about the river at Lomita. They nest upon the sand bars in the river, which seems a strange place for their nesting, as even a small rise of water means destruction to nests and eggs. We obtained a number of eggs early in May, and about the middle of the month a great rise occurred, which swept away all traces of their breeding resorts. The eggs have the ground-color darker drab than a set in my collection taken at Ipswich, Mass., by Mr. Bailey, and the dark brown blotches are much larger and more numerous. They average 1.18 by .91.

340	♀	Lomita	May 7	9.25	18.75	6.25	2.87
361	♀	....do	May 8	9.00	19.25	6.62	2.75
364	♀	....do	May 8	9.37	20.00	6.50	3.12

166. Rynchops nigra L.—*Black Skimmer.*

Common on the shallows and flats about Corpus Christi Bay the latter part of March, at which time they were in changing plumage. I am told they breed there in great numbers, but we were too early to see signs of it.

COLYMBIDÆ.

167. Colymbus torquatus Brünn.—*Loon.*

Common near the Pass, in Corpus Christi Bay, during the last days of March.

168. Podiceps dominicus (L.)—*San Domingo Grebe.*

Five of these birds obtained at Concepcion Lake, a few miles from Lomita, and a few others seen. I think they are not very common. Dissection of a female on April 27 showed eggs very little developed. The birds were moulting, and two of them looked like full-grown young of the season, making it probable that they breed very early.

225*b*	♂	Lomita	April 27	9.50	15.87	3.75
226	♀	....do	April 27	9.50	12.50	3.25
227	♂	....do	April 27	10.50	16.50	3.75
228	♀	....do	April 27	9.50	15.00	3.62
229	♀	....do	April 27	9.75	16.00	3.75

Article XXII.—Additional Lists of Elevations.

By Henry Gannett.

The Lists of Elevations herewith presented are additional to those given in the *fourth* edition of "Lists of Elevations" (Misc. Pub. No. 1, 1877), of which work the present article may be regarded as a supplement.

RAILROAD PROFILES.

[The first column of figures gives the heights as received from the office of the railroad or whatever the source may be. The second column gives the corrected heights.]

Galveston, Harrisburg, and San Antonio Railroad, Texas (from the chief engineer).

Stations.	Elevation.
	Feet.
Columbus	210
Borden	300
Weimar	417
Navidad Creek, water	250
Schulenburg	338
West Navidad Creek, water	262
Flatonia	470
Cedar Creek, water	327
Peach Creek, water	305
Wailder	375
Summit	455
Sandy Fork, water	355
Harwood	460
Mule Creek, water	390
Summit	466
Plum Creek, water	345
Luling	415
San Marcos River, water	360
Kingsbury	613
Geronimo Creek, water	508
Seguin	556
Marion	563
Guadelupe River, water	510
Summit	655
East Santa Clara	630
Switch No. 1	698
Dietz Creek, water	680
Cibolo Creek, water	700
Summit	772
Converse	718
Upson	685
Salado Creek, water	535
San Antonio	680
San Antonio River, water	675

Galveston, Harrisburg, and San Antonio Railroad, Texas—Continued.

Stations.	Elevation.
BRANCH FROM HOUSTON TO COLUMBUS.	*Feet.*
Houston, tide-water	0
Houston, grade	50
Pierce Junction	60
Richmond	70
Brazos River, water	30
Randon	90
East Barnard	120
East Barnard Creek, water	80
West Barnard Creek, water	130
West Barnard	160
Eagle Lake	200
Alleyton	190
Columbus	210
Colorado River, water	160

Base is Houston tide-water = 0. The road requires no correction.

Texas and Pacific Railroad (from the chief engineer).

Stations.	Elevation.	
	Feet.	*Feet.*
Texarkana, junction with Saint Louis, Iron Mountain and Southern Railroad	287	281
Texarkana, junction with Transcontinental and Jefferson Divisions Texas and Pacific Railroad	364	358
Jefferson, junction with East Line Railroad	227	221
Marshall, junction with Jefferson and Southern Divisions	377	371
Longview, crossing International and Great Northern Railroad, at grade	342	336
Gladewater	330	324
Big Sandy, crossing Tyler and Tap Railroad, at grade	342	337
Mineola, junction with International and Great Northern Railroad	415	410
Grand Saline	406	401
Wills Point	536	531
Elmo	507	502
Terrell	520	515
Forney	475	470
Mesquite	500	496
Dallas, crossing Houston and Texas Central Railroad at grade	472	468
Dallas, junction with Wichita Railroad	438	434
Fort Worth	629	625
Shreveport	204	200
TRANSCONTINENTAL DIVISION.		
New Boston	375	387
De Kalb	410	422
Clarksville	452	464
Paris	580	592
Honey Grove	670	682
Bonham	570	582
Sherman, crossing Houston and Texas Central Railroad at grade	735	747

Sea-level is said to be the datum.

The following points upon this road are checked: Longview, which is given by the International and Great Northern Railroad at 366[a] feet, indicating a correction of — 6 feet.

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[a] Lists of Elevations, 4th ed., p. 7.

Dallas, which by the Houston and Texas Central Railroad is given at 468[a] feet, indicating a correction of − 4 feet; and—

Sherman, which the same road gives as 747[a] feet, and which indicates a correction here of + 12 feet.

In the division of the road, Texarkana to Shreveport, I have distributed the errors + 6 and − 4 feet, while I have applied uniformly to the Transcontinental Division the correction + 12 feet.

Union Pacific Railroad (from Mr. George T. Nealley, assistant engineer).

Stations.	Elevation.	
	Feet.	*Feet.*
Omaha, low water in Missouri River	0	983. 26
Gilmore	29	1, 012
Papillion	38	1, 021
Platte Valley	182	1, 165
Fremont	236	1, 219
North Bend	313	1, 296
Schuyler	390	1, 373
Columbus	486	1, 469
Jackson	533	1, 515
Silver Creek	588	1, 571
Clark	662	1, 655
Lone Tree	741	1, 724
Chapman	808. 5	1, 792
Grand Island	904	1, 887
Pawnee	956	1, 939
Wood River	1, 027	2, 010
Gibbon	1, 100. 5	2, 084
Kearney Junction	1, 159. 5	2, 143
Stevenson	1, 231	2, 214
Elm Creek	1, 306. 5	2, 290
Overton	1, 362	2, 345
Plum Creek	1, 426	2, 409
Coyote	1, 500	2, 483
Willow Island	1, 563	2, 546
Warren	1, 644. 5	2, 628
Brady Island	1, 690	2, 673
McPherson	1, 750	2, 733
North Platte	1, 841	2, 824
Alkali	1, 993	2, 976
Roscoe	2, 173	3, 156
Ogallalla	2, 247	3, 230
Big Springs	2, 402	3, 385
Julesburg	2, 565	3, 548
Lodge Pole	2, 865	3, 848
Sidney	3, 126	4, 109
Potter	3, 415	4, 398
Antelope	3, 741	4, 724
Bushnell	3, 902	4, 885
Pine Bluffs	4, 082	5, 065
Egbert	4, 323	5, 306
Hillsdale	4, 671	5, 654
Archer	5, 050	6, 033
Cheyenne	5, 097	6, 080
Hazard Junction, with Colorado Central Railroad	....	6, 320
Hazard	5, 358	6, 340
Otto	5, 967	6, 949
Granite Cañon	6, 354	7, 336
Buford	6, 827	7, 808
Sherman	7, 291	8, 262
Tie Siding	6, 930	7, 911
Harney	6, 729	7, 709
New Harney	6, 592	7, 572

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[a] Lists of Elevations, 4th ed., p. 6.

Union Pacific Railroad—Continued.

Stations.	Elevation.	
	Feet.	*Feet.*
Red Butte	6,344	7,324
Fort Sanders, siding	6,215	7,194
Laramie City	6,192	7,171
Howell	6,150	7,128
Wyoming	6,121	7,099
Cooper's Lake	6,100	7,078
Lookout	6,212	7,189
Miser	5,983	6,960
Rock Creek	5,758	6,735
Como	5,754	6,730
Medicine Bow	5,606	6,582
Carbon	5,805	6,781
Simpson	6,281	7,256
Percy	6,006	6,981
Dana	5,896	6,871
Saint Mary	5,807	6,781
Wolcott	5,665	6,639
Greenville	5,533	6,507
Benton	5,614	6,588
Rawlins	5,788	6,761
Summit	5,953	6,926
Separation	5,711	6,684
Fillmore	5,849	6,821
Creston	6,083	7,055
Latham	5,967	6,939
Washakie	5,750	6,721
Red Desert	5,741	6,712
Tipton	6,047	7,018
Table Rock	5,880	6,850
Bitter Creek	5,739	6,710
Black Butte	5.656	6,626
Point of Rocks	5,551	6,520
Thayer	5,499	6,467
Salt Wells	5,415	6,383
Baxter	5,340	6,308
Rock Springs	5,282	6,249
Lawrence	5,231	6,198
Green River, bridge	5,134	6,101
Bryan	5,220	6,186
Marston	5,255	6,221
Granger	5,312	6,278
Church Buttes	5,392	6,357
Hampton	5,455	6,420
Carter	5,540	6,505
Bridger	5,660	6,625
Piedmont	6,102	7,067
Aspen	6,432	7,396
Willis	6,096	7,060
Evanston	5,793	6,757
Wahsatch	5,849	6,812
Castle Rock	5,273	6,236
Echo	4,509	5,472
Weber Quarry	4,273	5,236
Weber	3,973	4,935
Weber River, grade	3,859	4,821
Devil's Gate	3,848	4,809
Uinta	3,537	4,498
Taylor's Mill	3,393	4,353
Ogden	3,343.4	4,303.4
Ogden River	3,315.4	4,275.4

This profile of the Union Pacific Railroad was recomputed from the original notes by Mr. George T. Nealley, then assistant engineer of the road, at my request. It is said to be the only correct profile of the road in existence. The discrepancies, however, between this and the profile in the possession of the United States Signal Bureau are very slight, which fact goes far toward proving the correctness of both of them.

The profile, starting with my height of low water at Omaha,[a] checks at Cheyenne to a foot. At Ogden, where it connects with the Central Pacific Railroad at grade, there is a discrepancy of 26 feet, the latter road being the lowest.[b] I have, following Mr. Gardner,[c] given the Central Pacific Railroad determination a weight of 10 against 1 for that of the Union Pacific Railroad, giving a resulting height for Ogden (track at station) of 4,303 feet, and leaving an error of 24 feet to be distributed over the Union Pacific Railroad between Cheyenne and Ogden.

Colorado Central Railroad.—Branch from Hazard Junction, Wyoming (Union Pacific Railroad), to Cache la Poudre River, Colorado (from Mr. George T. Nealley, C. E.)

Stations.	Elevation.
	Feet.
Hazard Junction, Union Pacific Railroad	6,320
Summit	6,395
Last crossing Lone Tree Creek	5,985
Summit	6,120
Last crossing Box Elder Creek	5,320
Summit	5,275
Cache la Poudre River, at Fort Collins	4,975

Hazard Junction, given by the Union Pacific Railroad (see p. 443), is the base. There is no check.

Georgetown, Leadville, and San Juan Railroad preliminary line (from E. L. Berthoud, chief engineer).

Stations.	Elevation.	
	Feet.	*Feet.*
Georgetown, Colo	8,400	8,514
Silver Plume	9,000	9,114
Brownville	9,077	9,191
Bakerville	9,602	9,716
Fisk's Sawmill	10,800	10,914
Loveland's Pass	11,850	11,964
Snake River (opposite Montezuma)	9,800	9,914
Mouth Ten Mile Creek	8,850	8,964
Ten Mile Pass	11,300	11,414
Leadville	10,100	10,214

Georgetown track, from the Colorado Central Railroad[d] is the datum. There is no check.

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[a] Lists of Elevations, 4th ed., p. 4.

[b] Lists of Elevations, 4th ed., p. 48.

[c] Elevations of Certain Datum Points, etc., Gardner, in Annual Report U. S. Geological Survey of Territories for 1873, p. 653.

[d] Lists of Elevations, 4th ed., p. 19.

Pueblo and Arkansas Valley Railroad (Colorado and New Mexico), from Mr. George T. Nealley, C. E.

Stations.	Elevation.
	Feet.
La Junta	4,137
Timpas	4,479
Iron Springs	4,748
Thatcher	5,471
Earle	5,759
Hoene	5,783
Crossing Denver and Rio Grande Railroad	5,929
Commercial street, Trinidad	6,044
Coal tracks	6,395
Morley	6,823
Summit of Raton Pass	7,863
Grade at south end of tunnel, Raton Pass	7,680
Willow Springs	7,691
Eagle Tail Dike	6,124
Opposite Twin Buttes	6,013
Eagle Tail	5,959
Cimarron	5,841
Ocaté	5,996
Big Windy Divide	6,378
Santa Clara	6,250
Cherry Valley	6,326
La Junta	6,471
Sapello	6,563
Divide Arkansas and Rio Grande	6,811
Las Vegas	6,460
Priest's Gap	6,400

La Junta, as given by the Atchison, Topeka and Santa Fé Railroad, is the base. (See Lists of Elevations, 4th ed., p. 20.) There is no check upon this road, and it requires no correction.

Preliminary surveys for a railroad from Cheyenne to the Black Hills (from George T. Nealley, assistant engineer).

Stations, etc.	Elevation.
	Feet.
Cheyenne, track of Union Pacific Railroad	6,080
Fort Russell	6,180
Summit between Crow and Lodge Pole Creeks	6,820
Lodge Pole Creek	6,710
Summit	6,785
Horse Creek	6,505
Summit	6,755
First Point on Chugwater Creek	6,265
Phillip's Ranch	5,300
Mouth of Chugwater Creek	4,360
Valley between the Laramie and Platte Rivers, just below Fort Laramie	4,255
Summit on short cut to Rawhide Creek	4,785
Summit on long line to Rawhide Creek	4,510
Mouth of Rawhide Creek	4,160
Rawhide Creek at Point of divergence of easterly line	4,555
Summit on west line, between Rawhide Creek and Niobrara River	5,040
Niobrara River, on west line	4,910
Summit on east line	4,910
Spoonhill Creek, east line	4,790
Summit, east line	4,905
Niobrara River, east line	4,740
Summit between Niobrara River and Cheyenne River	5,045

Preliminary surveys for a railroad from Cheyenne to the Black Hills—Cont'd.

Stations, etc.	Elevation.
WEST LINE.	*Feet.*
Last crossing Indian Creek	3,870
Summit	4,225
First crossing Cottonwood Creek	3,770
Cheyenne River	3,480
First general summit	5,940
Valley	5,045
Summit	5,740
Valley	5,020
Summit, highest point of valley-drainage in the Black Hills	6,790
North Spearfish Creek	3,410
Hill City	3,655
Castletown	5,020
Mountain City	3,610
Spearfish City	3,760
Fort Laramie, flag-staff	4,295

Cheyenne (track Union Pacific Railroad) is the datum. As there is no check, there is no correction to be applied.

Preliminary line from Evanston, Wyo., to Fort Hall, Idaho, via Bear and Blackfoot Rivers (from the office of the Union Pacific Railroad).

Stations, etc.	Elevation.		
	Miles.	*Feet.*	*Feet.*
Evanston Round-House	0	3,001	6,776
Bear River	2	2,930	6,705
Bend in Bear River	13	2,730	6,505
Bear River	26	2,578	6,353
Bend in Bear River	63	2,448	6,223
Crossing Smith's Fork	63.5	2,451	6,226
Bear River	87	2,240	6,015
Bear River	88	2,225	6,000
Crossing Tullock's Fork	96	2,223	5,998
Bear River	109	2,145	5,920
Bear River	111	2,138	5,913
Bear River	113	2,125	5,900
Divide, Bear to Blackfoot	133	2,435	6,210
Blackfoot River	136	2,378	6,153
Crossing Little Blackfoot River	143	2,347	6,122
Blackfoot River	150	2,342	6,117
Blackfoot River	153	2,335	6,110
Blackfoot River	181	1,106	4,881
Blackfoot River	185	970.5	4,746
Lincoln Creek, 1,000 feet west of Fort Hall	202	927.1	4,702

Base is Evanston Round-House. See Evanston, p. 444. There is no check.

Utah and Northern Railroad, Utah and Idaho (from the office of the road).

Stations, etc.	Elevation.	
	Feet.	*Feet.*
Ogden, Utah, track Union Pacific Railroad	88	4,303
Brigham City	108	4,323
Box Elder Lake	43	4,258
Summit between Hampton and Mendon	768	4,983
Mendon	245	4,460
Little Bear River Bridge	210	4,425
Logan	294	4,509
Logan Tabernacle Square	330	4,545
Smithfield	350	4,565
Richmond	322	4,537
Franklin	301	4,516
PRELIMINARY LINE FOR EXTENSION TO SODA SPRINGS, IDAHO.		
Summit of hill, nine miles north of Franklin	817	5,032
Proposed bridge over Bear River, 14 miles from Franklin, at foot of cañon, water	394	4,609
Head of cañon, water in Bear River	477	4,692
Fellow's Creek, water	687	4,902
Proposed bridge, 10 miles south of Soda Springs, water in Bear River	1,307	5,522
Soda Springs Station	1,564	5,779

The base is track at Ogden, Utah. There is no check.

Utah and Northern Railroad, Idaho, from Franklin to Snake River (from the office of the road).

Stations, etc.	Elevation.	
	Feet.	*Feet.*
Franklin, Cub River Bridge	4,542	4,516
Crossing Worm Creek	4,659	4,633
Bench at crossing Bear River	4,765	4,739
Bear River	4,536	4,510
Battle Creek Station	4,533	4,507
Swan Lake Station	4,829	4,803
Red Rock Gap	4,828	4,802
Top of bluffs	4,904	4,878
Crossing Nine Mile Creek	4,898	4,872
Tillotson Creek	4,850	4,824
Oneida Station	4,693	4,667
Mouth Marsh Creek	4,572	4,546
Crossing Ingam Pompey Creek	4,573	4,547
Portneuf Station	4,548	4,522
Ross Fork Station	4,495	4,469
Blackfoot Station	4,549	4,523
Taylor's Bridge	4,746	4,720
Railroad bridge over Snake River	4,757	4,731
High water in Snake River at Taylor's Bridge	4,743	4,717
Opposite Market Lake Station	4,820	4,794

Base is track at Franklin, as above. There is no check.

Preliminary line for the extension of the Utah and Northern Railroad from the crossing of Snake River, Idaho, to Helena, Mont. (from Capt. E. L. Berthoud, chief engineer).

Stations, etc.	Elevation.	
	Feet.	*Feet.*
Snake River, east bank	4,741	4,715
Snake River, water level	4,723	4,697
Snake River, west bank	4,741	4,715
40 miles from Ross Fork	4,756	4,730
50 miles from Ross Fork	4,811	4,785
Opposite east end of Market Lake	4,806	4,780
60 miles from Ross Fork	4,837	4,811
70 miles from Ross Fork	4,843	4,817
80 miles from Ross Fork	4,898	4,872
Bank Camas Creek	4,914	4,888
Water in Camas Creek	4,907	4,881
90 miles from Ross Fork	5,153	5,127
South bank Dry Creek, on basalt cliff	5,615	5,589
Stream bed	5,575	5,549
North bank Dry Creek, on basalt cliff	5,604	5,578
100 miles from Ross Fork	5,875	5,894
Beaver Cañon, stage-station	5,925	5,899
Mouth of Beaver Cañon	6,140	6,114
112 miles from Ross Fork, in Beaver Creek Cañon	6,566	6,540
Summit of Pleasant Valley divide	5,856	6,830
Opposite Summit stage-station	6,764	6,738
120 miles from Ross Fork	7,756	6,730
130 miles from Ross Fork	6,403	6,377
140 miles from Ross Fork	6,054	6,028
150 miles from Ross Fork	5,772	5,746
160 miles from Ross Fork	5,528	5,502
170 miles from Ross Fork	5,354	5,328
Watson's stage-station	5,269	5,243
180 miles from Ross Fork	5,165	5,139
Blacktailed Deer Creek, water	5,158	5,132
190 miles from Ross Fork	4,950	4,924
Beaverhead River, at Beaverhead, water	4,828	4,802
200 miles from Ross Fork	4,801	4,775
Ruby River	4,697	4,671
Salisbury Station, on the bench	4,720	4,694
210 miles from Ross Fork	4,769	4,743
220 miles from Ross Fork	4,543	4,517
South bank Jefferson River	4,473	4,447
Water-level, Jefferson River	4,466	4,440
North bank, Jefferson River, bluff	4,504	4,478
Fish Creek, bed	4,484	4,458
230 miles from Ross Fork	4,434	4,408
Pipestone Creek, bed	4,396	4,370
Whitetail Deer Creek, bed	4,447	4,421
Whitehall stage-station	4,493	4,467
240 miles from Ross Fork	4,561	4,535
250 miles from Ross Fork	5,008	4,982
Summit between Whitetail Deer and Boulder Creeks	5,800	5,774
Little Boulder Creek, water	4,851	4,825
260 miles from Ross Fork	4,893	4,867
Boulder Creek, bed	4,889	4,963
Opposite Boulder City	4,904	4,878
Summit between Boulder and Prickly Pear Creeks	5,757	5,731
Prickly Pear Creek	4,761	4,735
Jefferson City	4,575	4,549
Warm Springs Hotel	4,296	4,270
Clancy	4,262	4,236
280 miles from Ross Fork	4,253	4,227
Prickly Pear Creek, bed	4,080	4,054
290 miles from Ross Fork	3,951	3,925
Bench mark in Helena	4,061	4,035
Corner-stone in basement of school-house	4,149	4,123

Preliminary line for the extension of the Utah and Northern Railroad—Cont'd.

Stations, etc.	Elevation.	
PRELIMINARY LINE FROM HELENA, MONT., TO HENRY'S LAKE, IDAHO.		
	Feet.	*Feet.*
Bench-mark at Helena (see p. 449)	4,061	4,035
Prickly Pear Creek, bed	3,901	3,875
Little Prickly Pear Creek, bed	3,909	3,883
10 miles from Helena	4,067	4,041
Halfway House	4,157	4,131
Opposite Spokane House	4,261	4,235
Opposite Rodgers' House, in Missouri Valley	4,320	4,294
20 miles from Helena, in Missouri Valley	4,421	4,395
Opposite Big Springs	4,155	4,129
Bedford	3,845	3,819
30 miles from Helena	3,845	3,819
Water in Missouri River	3,811	3,785
40 miles from Helena	3,903	3,877
Crow Creek	4,031	4,005
50 miles from Helena	4,125	4,099
Warm Springs Creek	4,164	4,138
60 miles from Helena	4,315	4,289
Jefferson River, at bridge, water	4.078	4,052
Jefferson River Bayou	4,079	4,053
70 miles from Helena, Madison Valley	4,153	4,127
80 miles from Helena, Madison Valley	4,354	4,328
Elk Creek	4,417	4,391
Foot cañon, Madison River, water	4,427	4,401
Head cañon, Madison River, water	4,444	4,418
Cherry Creek, bed	4,454	4,428
Madison River, 1 mile above bridge, water	4,487	4,461
Red Bluff Creek, foot of cañon, 90 miles from Helena	4,516	4,490
Hot Spring Creek	4,553	4,527
Crossing Meadow Creek, back from river	4,827	4,801
110 miles from Helena	4,972	4,946
120 miles from Helena	5,267	5,241
Wigwam Creek	5,232	5,206
130 miles from Helena	5,590	5,564
Cañon Creek	5,575	5,549
140 miles from Helena	5,786	5,760
Leave the Madison River	5,985	5,959
150 miles from Helena	6,038	6,012
160 miles from Helena	6,821	6,795
Raynolds' Pass	6,838	6,812
Henry's Lake	6,475	6,449
Tahgee Pass	7,079	7,053

The base is given as bank of Ross Fork, which, by the completed road, is 4,469, the same as Ross Fork station. The correction is − 26 feet. There is no check.

Canadian Pacific Railway (from published report).

Stations.	Elevation.	
	Feet.	*Feet.*
Lake Superior	598	609.4
Fort William	603	614
Murillo	904	915
Lofoden	1,070	1,081
Kaministiquia	1,010	1,021
Finmark	1,177	1,188

Canadian Pacific Railway (from published report)—Continued.

Stations.	Elevation.	
	Feet.	*Feet.*
Breda	1,469	1,180
Nordland	1,540	1,551
Linköping	1,531	1,542
Port Savanne	1,503	1,514
Upsala	1,559	1,570
Carlstadt	1,512	1,523
Bridge River	1,540	1,551
English River	1,515	1,526
Martin	1,556	1,567
Bonheur	1,558	1,569
Falcon	1,505	1,516
Ignace	1,586	1,597
Butler	1,430	1,441
Raleigh	1,405	1,416
Taché	1,421	1,432
Malmkorn	1,277	1,288
Bois Brulé	1,212	1,223
Wabigoon	1,252	1,263
Barclay	1,246	1,257
Oxdrift	1,163	1,174
Eagle River	1,192	1,203
Vermillion	1,241	1,252
Gilbert	1,223	1,234
Parrywood	1,372	1,383
Cormack	1,307	1,318
Atikameg	1,244	1,255
Rossland	1,135	1,146
Keewatin	1,092	1,103
Ostersund	1,117	1,128
Kalmar	1,223	1,234
Ingolf	1,180	1,191
Telford	1,104	1,115
Rennie	1,055	1,066
Darwin	970	981
Whitemouth	905	916
Shelley	937	948
Monmouth	886	897
Beausejour	822	833
Tyndall	803	814
Selkirk	750	761
Korma	756	767
Cowper	767	778
Acadie	904	915
Cottonwood	908	919
Carlyle	874	885
Menstrie	871	882
Eldon	863	874
Borodino	860	871
Grattan	843	854
Gough	841	852
Donnacona	828	839
Vapna	825	836
Cartier	849	860
Novrad	831	842
Braidwood	846	857
Speke	861	872
Logan	852	863
Haywood	851	862
Hogarth	854	865
Pontrincourt	852	863
Vandyck	844	855
Blackwood	930	841

Canadian Pacific Railway (from published report)—Continued.

Stations.	Elevation.	
	Feet.	*Feet.*
Longueville	971	982
Sussex	1,046	1,057
Petrovka	1,195	1,206
Northcote	1,180	1,191
Hennepin	1,179	1,190
Coleridge	1,217	1,228
Erskine	1,362	1,373
Skalholt	1,390	1,401
Doyle	1,461	1,472
Livingstone	1,512	1,523
Alice	1,646	1,657
Malmo	1,745	1,756
Morland	1,712	1,723
Assineboine	1,707	1,718
Leyden	1,727	1,738
Stopford	2,021	2,032
Nuthill	1,983	1,994
Murchison	1,868	1,879
Killyleagh	1,822	1,833
Thackeray	1,806	1,817
Nasmyth	1,801	1,812
Buckstone	1,823	1,834
Thorwaldsen	1,827	1,838
Swanholm	1,888	1,899
Humboldt	1,876	1,887
Gotland	1,832	1,843
Denholm	1,856	1,867
Baldwin	1,872	1,883
Grenoble	1,815	1,826
Finland	1,720	1,731
Roundell	1,696	1,707
Saskatchewan	1,845	1,856
Eldred	1,876	1,887
Goulbourn	1,703	1,714
Bethlehem	1,644	1,655
Caerlaverock	1,562	1,573
Normanfield	1,518	1,529
Ronaldsa	1,667	1,678
Raith	1,592	1,603
Eagle Hill	1,612	1,623
Hecla	1,581	1,592
Battleford	1,615	1,626
Coalbrook	1,684	1,695
Wolfhill	1,704	1,715
Nabikwan	1,785	1,796
B	1,825	1,836
C	1,928	1,939
D	2,012	2,023
E	2,021	2,032
F	2,125	2,136
G	2,102	2,112
H	2,165	2,176
Grizzly Bear	2,145	2,156
I	2,210	2,221
K	2,240	2,251
L	2,325	2,336
M	2,325	2,336
N	2,243	2,254
O	2,287	2,298
P	2,363	2,374
Q	2,475	2,486
R	2,500	2,511
S	2,500	2,511

Canadian Pacific Railway (from published report)—Continued.

Stations.	Elevation.	
	Feet.	*Feet.*
Edmonton	2,413	2,424
Grandin	2,380	2,391
Siksika	2,320	2,331
La Plaine	2,422	2,433
Palliser	2,413	2,424
Belcour	2,407	2,418
Lobstick	2,518	2,529
Langlade	2,685	2,696
Southesk	2,688	2,699
Cheadle	2,765	2,776
Boot River	2,921	2,932
Lacombe	3,043	3,054
Montbrun	3,006	3,017
McLeod	3,062	3,073
Beaver	3,400	3,411
Vallad	3,467	3,478
Ponoka	3,368	3,479
Bayonette	3,226	3,237
Hector	3,259	3,270
Grand Portal	3,245	3,256
Jasperia	3,243	3,254
Miniwakan	3,276	2,287
Athabasca	3,339	3,350
Myette	3,456	3,467
Summit Meadow	3,628	3,639
Yellow Head	3,646	3,657
Wastedo	3,499	3,510
Moose Lake	3,421	3,432
Fraser River	3,409	3,410
Grand Forks	2,930	2,941
Tête Jaune Cache	2,780	2,791
PACIFIC DIVISION.		
Albreda	....	2,866
Blue River	....	2,300
Clearwater	....	1,356
Kamloops	....	1,144
Savona	....	1,135
Lytton	....	642
Yale	....	140
Port Moody	....	0

For the main section of this road the level of Lake Superior, given at 598 feet is the datum. My determination of this datum (see Lists of Elevations, 4th ed., p. 3) is 609.4 feet, requiring a correction of +11.4 feet throughout. The short, Pacific section of the road starts from sea-level, and there is no check upon it.

ELEVATIONS OF TOWNS, ETC., ARRANGED ALPHABETICALLY BY STATES AND TERRITORIES.

Arizona.

Towns, &c.	Authority.	Elevation.
		Feet.
Bower's Ranch	Wheeler	4,412
Camp Mojave	Wheeler	755
Cañon Springs	Wheeler	5,498
Chloride	Wheeler	4,201
Cienega de San Simon	Wheeler	3,855
Cooley's Ranch	Wheeler	5,367
Desert Tanks	Wheeler	5,192
Hualapais	Wheeler	5,322
Jaycock's Ranch	Wheeler	6,814
Navajo Spring	Wheeler	4,101
Peach Orchard Spring	Wheeler	6,272
Picket Post	Wheeler	2,669
Pipe Springs	Wheeler	5,397
Rock Springs	Wheeler	6,849
San Carlos Agency	Wheeler	2,456
Silver Spring	Wheeler	6,169
Spear's Ranch	Wheeler	681
Tegua (Moquis Town)	Wheeler	6,299
Tucson	Wheeler	2,538
Willow Spring	Wheeler	7,294

California.

Towns, &c.	Authority.	Elevation.
Adobe	Wheeler	282
Agua Caliente	Wheeler	3,617
Antelope Ranch	Wheeler	359
Arab Spring	Wheeler	5,697
Bah-li-val Spring	Wheeler	6,284
Bennett's Wells, Death Valley	Wheeler	−6
Bold's Ranch	Wheeler	141
Bozeman's Ranch	Wheeler	3,157
Buckhorn Ranch	Wheeler	693
Caliente	Wheeler	1,314
Caliente Springs	Wheeler	3,688
Camp Cady	Wheeler	1,894
Cannelas Ranch	Wheeler	799
Cañon Spring	Wheeler	1,238
Cañon Station	Wheeler	2,650
Carthage	Wheeler	3,589
Cerro Gordo Landing	Wheeler	3,656
Clover Valley	Wheeler	3,464
Coombs	Wheeler	2,886
Cottonwood	Wheeler	2,488
Cottonwood Island	Wheeler	787
Cow Spring	Wheeler	3,876
Cucamonga	Wheeler	1,328
Cuddy's Ranch	Wheeler	5,278
Deep Spring	Wheeler	4,957
Desert Spring	Wheeler	1,989
Dos Palmas	Wheeler	103
Dutch Henry's Ranch	Wheeler	1,195
Edgar's Spring	Wheeler	4,061
Eldorado Mill	Wheeler	863
Elizabeth Lake	Wheeler	3,317

ELEVATION OF TOWNS, ETC.—Continued.

California—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Elliott's Ranch, on Little Truckee River	Wheeler	6,233
El Monte	Wheeler	329
El Paso Mines	Wheeler	4,113
Fears Station	Wheeler	3,393
Francis Spring	Wheeler	4,220
Furnace Creek	Wheeler	405
Furnace Springs	Wheeler	337
Gordon's Ranch	Wheeler	737
Gormon's Ranch	Wheeler	3,838
Granite Springs	Wheeler	4,115
Granite Wells	Wheeler	2,080
Grapevine Ranch	Wheeler	2,247
Grapevine Spring	Wheeler	2,432
Halloran Spring	Wheeler	3,272
Indian Wells	Wheeler	2,608
Ivanpah	Wheeler	4,238
Johnson's Ranch	Wheeler	3,460
Johnson's Ranch	Wheeler	5,015
Kernville	Wheeler	2,551
Kincaid's Ranch	Wheeler	1,771
King's Springs	Wheeler	— 225
La Bayonne	Wheeler	16
La Lagana Ranch	Wheeler	129
Lane's Crossing of Mojave River	Wheeler	2,819
Leach's Point	Wheeler	3,409
Little Yosemite	Wheeler	6,442
Liverpool Landing, Colorado River	Wheeler	606
Lone Pine	Wheeler	3,810
Lookout Hill	Wheeler	4,214
Lopez Ranch	Wheeler	3,248
Los Encinos	Wheeler	774
Los Toros	Wheeler	203
Lyon's Ranch	Wheeler	1,397
Malaga Ranch	Wheeler	4
Martin's Ranch	Wheeler	2,055
Mesquite Spring	Wheeler	2,010
No-man's Spring	Wheeler	3,735
Nordhoff	Wheeler	819
Pah Ute Mines	Wheeler	6,607
Pah Ute Springs	Wheeler	2,849
Panamint	Wheeler	6,605
Panamint Station	Wheeler	3,549
Red Rock Station	Wheeler	2,394
Reilly's Station	Wheeler	1,477
Ritger's Ranch	Wheeler	4,345
Rose Springs	Wheeler	3,545
Rowland's Ranch	Wheeler	6,222
San Diego	United States Signal Office, Wheeler, level.	62
San Emigdio Store	Wheeler	788
San Fernando	Wheeler	3,793
San Francisco	United States Signal Office, Wheeler, level.	60
San Gabriel	Wheeler	419
San Gabriel Church	Wheeler	481
Santa Buena Ventura	Wheeler	146
Santa Monica	Wheeler	82
Santa Paula	Wheeler	384

ELEVATIONS OF TOWNS, ETC.—Continued.

California—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Sayquite Spring	Wheeler	5,553
Sierra Valley	Wheeler	4,910
Sierraville	Wheeler	4,904
Silver Spring	Wheeler	4,000
Soledad City	Wheeler	2,513
Spadra	Wheeler	802
Surveyor's Wells	Wheeler	3,567
Thomas' Ranch	Wheeler	3,772
Vergenes Range	Wheeler	940
West's Ranch	Wheeler	596
Whitney's Meadows	Wheeler	9,371
Willow Tree Spring	Wheeler	2,500
Workman's Ranch	Wheeler	362

Colorado.

Towns, &c.	Authority.	Elevation.
Arkansas Bridge	Wheeler	7,741
Badito	Wheeler	6,387
Bakerville	Georgetown, Leadville and San Juan Railroad.	9,716
Bent's Cañon	Wheeler	4,696
Bismarck Post Office	Wheeler	7,736
Brownville	Georgetown, Leadville and San Juan Railroad.	9,191
Buffalo Springs, South Park	Wheeler	8,952
Carr's Cabin, Antelope Park	Wheeler	9,989
Chicoso	Wheeler	6,076
Colfax	Wheeler	8,599
Conejos	Wheeler	7,435
Costilla	Wheeler	7,751
Culebra Church	Wheeler	8,010
Dayton	Wheeler	9,333
Del Norte	Wheeler	7,743
Dotson's Ranch	Wheeler	6,379
Earle	Pueblo and Arkansas Valley Railroad	5,759
Fisk's Sawmill	Georgetown, Leadville and San Juan Railroad.	10,914
Florissant	Wheeler	8,184
Fort Collins	Colorado Central Railroad	4,975
Fort Garland		7,849
Gardner	Wheeler	6,956
Georgetown, Astronomical Station	Wheeler	8,587
Grant		8,497
Hall's Ranch	Wheeler	7,840
Hall's Smelting Works	Wheeler	9,916
Hamilton's Ranch	Wheeler	7,227
Hartzell's Ranch	Wheeler	8,828
Hoene	Pueblo and Arkansas Valley Railroad	5,783
Howardville	Wheeler	9,545
Huerfano	Wheeler	4,714
Hughes	Wheeler	5,021
Idaho Springs	Wheeler	7,284
Iron Springs	Pueblo and Arkansas Valley Railroad	4,748
Labran, Astronomical Stat'n	Wheeler	5,218
Lake City	Wheeler	8,753
La Junta	Wheeler	6,612

ELEVATIONS OF TOWNS, ETC.—Continued.

Colorado—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Lane's Ranch	Wheeler	6,380
Las Animas (west)	Wheeler	3,886
Leadville	Georgetown, Leadville and San Juan Railroad.	10,214
Leonard's Ranch	Wheeler	8,335
Lockwood's Ranch	Wheeler	4,997
Los Pinos Agency	Wheeler	9,088
McClure's Ranch	Wheeler	5,318
Mineral City	Wheeler	11,474
Pleasant Valley	Wheeler	6,271
Rito Alto	Wheeler	8,169
Riverside	Wheeler	9,144
Rock Cliff	Wheeler	8,270
Rosita	Wheeler	8,932
Round Mountain P. O	Wheeler	8,732
Saint Mary's	Wheeler	6,167
San Isabel	Wheeler	7,537
San Juan City	Wheeler	8,901
San Luis de Culebra	Wheeler	7,596
Silver Plume	Georgetown, Leadville and San Juan Railroad.	9,114
Sizer's Ranch	Wheeler	4,040
Slate Ranch	Wheeler	9,257
Snyder's Ranch	Wheeler	9,127
South Platte Bridge	Wheeler	7,978
South Arkansas P. O	Wheeler	7,383
Stern's Store	Wheeler	9,068
Thatcher	Pueblo and Arkansas Valley Railroad	5,471
Timpas	Pueblo and Arkansas Valley Railroad	4,479
Tollgate, Poncho Creek road	Wheeler	8,216
Unagua Spring	Hayden	8,141
Union Park	Wheeler	9,654
Venable's Ranch	Wheeler	7,628
Vogel's Cañon	Wheeler	4,205
White's Ranch, Huerfano Park	Wheeler	7,469
Wilcox Ranch, Antelope Park	Wheeler	9,000

Idaho.

Battle Creek Station	Utah and Northern Railroad	4,507
Beaver Cañon stage-station	Utah and Northern Railroad	5,899
Blackfoot	Utah and Northern Railroad	4,523
Franklin	Utah and Northern Railroad	4,516
Oneida	Utah and Northern Railroad	4,667
Portneuf	Utah and Northern Railroad	4,522
Red Rock	Utah and Northern Railroad	4,802
Ross Fork	Utah and Northern Railroad	4,469
Soda Springs	Utah and Northern Railroad	5,779
Swan Lake Station	Utah and Northern Railroad	4,803
Taylor's Bridge	Utah and Northern Railroad	5,899

ELEVATIONS OF TOWNS, ETC.—Continued.

Montana.

Towns, &c.	Authority.	Elevation.
		Feet.
Beaverhead, water in Beaverhead River	Utah and Northern Railroad	4,802
Bedford	Utah and Northern Railroad	3,819
Bozeman	Wheeler	4,839
Clancy	Utah and Northern Railroad	4,236
Helena, bench-mark	Utah and Northern Railroad	4,035
Jefferson City	Utah and Northern Railroad	4,549
Salisbury	Utah and Northern Railroad	4,694
Warm Springs Hotel	Utah and Northern Railroad	4,270
Watson's stage-station	Utah and Northern Railroad	5,243
Whitehall	Utah and Northern Railroad	4,467

Nevada.

Towns, &c.	Authority.	Elevation.
Ahle's Ranch	Wheeler	5,990
Antoine's Ranch	Wheeler	6,517
Austin	Wheeler	6,594
Belmont	Wheeler	8,092
Birchin's Ranch, Reese River Valley	Wheeler	5,743
Buckland's Ranch, Carson River Valley	Wheeler	4,151
Buffalo Spring	Wheeler	4,076
Callville	Wheeler	945
Camp Cottage	Wheeler	6,437
Camp Halleck	King	5,671
Carlin	Wheeler	4,849
Carson	Wheeler	4,700
Chalk Well	Wheeler	7,604
Cherry Valley	Wheeler	7,473
Cleaver's Ranch, Walker River Valley	Wheeler	4,337
Cold Spring	Wheeler	5,418
Cottonwood Spring	Wheeler	3,450
Cox's Station	Wheeler	4,379
Coyote Spring	Wheeler	3,674
Crossman's Spring	Wheeler	4,391
Crystal Spring	Wheeler	5,782
Cumberland	King	5,674
Custer Springs, Steptoe Valley	King	5,843
Dayton	Wheeler	4,376
Dead Horse Well	Wheeler	4,117
Deep Hollow	Wheeler	5,244
Desert Wells	Wheeler	4,693
Diamond Valley	King	5,560
Disappointment Spring	Wheeler	4,835
Elkhorn	Wheeler	6,123
Ellsworth	Wheeler	6,871
Empire	Wheeler	4,553
Eureka	Wheeler	5,906
Galena	Wheeler	5,650
Gates' Ranch	Wheeler	4,154
Geiger's Ranch	Wheeler	4,352
Glenbrook	Wheeler	6,282
Ione	Wheeler	6,844
Las Vegas	Wheeler	2,018
Lee's Mill, Mason Valley	Wheeler	4,350
Locust Spring	Wheeler	6,167

ELEVATIONS OF TOWNS, ETC.—Continued.

Nevada—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Lodi	Wheeler	5,356
Marlett's Ranch	Wheeler	8,074
Mason's Ranch	Wheeler	4,348
McMahon's Ranch (Reese River Valley)	Wheeler	6,552
Morey	Wheeler	7,384
Mountain Spring	Wheeler	5,501
Mud Lake Valley	King	3,862
O'Neill's Ranch	Wheeler	5,581
Owyhee	Wheeler	5,392
Pahghun-pahghun Spring	Wheeler	2,282
Patterson's Ranch	Wheeler	5,213
Pennoyer Spring	Wheeler	6,652
Peterson's Ranch	Wheeler	6,137
Rabbit Hole Spring	King	4,374
Ragtown	King	4,039
Saint Clair	Wheeler	3,989
San Antonio	Wheeler	5,281
Sand Springs	Wheeler	3,926
Saratoga Springs	Wheeler	?2,640
Schmidtlein's Ranch	Wheeler	6,220
Shoshone Wells	King	5,796
Silver Age	Wheeler	6,014
Silver Peak Mines	Wheeler	4,256
Steptoe Valley	King	5,730
Sterling Mills	Wheeler	6,818
Stone's Cabin	Wheeler	6,390
Stone's Ferry	Wheeler	1,108
Stump's Ranch	Wheeler	4,749
Sulphur Springs	Wheeler	3,972
Timpahute Spring	Wheeler	6,892
Tinnah-Kah-Spring	Wheeler	4,080
Tissapook Spring	Wheeler	5,832
Washington	Wheeler	6,992
Welch's Ranch	Wheeler	5,236
West Gate	Wheeler	4,504
White Bluff Spring	Wheeler	5,020
White Rock	Wheeler	4,818

New Mexico.

Acoma	Wheeler	6,423
Agua Azul	Wheeler	6,682
Agua Flegra	Wheeler	8,194
Aguajes de los Guajolotes	Wheeler	6,202
Alanullo	Wheeler	4,693
Albuquerque	Wheeler	4,919
Algodones	Wheeler	5,104
Antelope Spring	Wheeler	6,221
Anton Chico	Wheeler	5,382
Belen	Wheeler	4,890
Bernal Hill	Wheeler	7,029
Bernallillo	Wheeler	5,084
Blue Water Spring	Wheeler	6,778
Bueno Caballo	Wheeler	6,948
Cameron's Ranch	Wheeler	7,133
Camp Yucca	Wheeler	4,374
Cáñoncito	Wheeler	7,023

ELEVATIONS OF TOWNS, ETC.—Continued.

New Mexico—Continued.

Towns, &c.	Authority.	Elevation. Feet.
Cañon del Agua	Wheeler	5,916
Carrizo Spring	Wheeler	7,477
Chamisal	Wheeler	7,528
Cherry Valley	Pueblo and Arkansas Valley Railroad	6,326
Chico Spring	Wheeler	6,882
Cibolleta	Wheeler	6,411
Cimarron	Wheeler	6,385
Cimarron	Pueblo and Arkansas Valley Railroad	5,841
Cineguilla	Wheeler	6,011
Ciruela	Wheeler	6,744
Colonas Ferry (Rio Grande)	Wheeler	7,443
Corrales		5,091
Cow Spring	Wheeler	4,954
Coyote Spring	Wheeler	7,202
Coyote Waterholes	Wheeler	6,775
Cross Spring	Wheeler	6,265
Cubero	Wheeler	6,122
Cuchillo	Wheeler	5,195
Eagle Tail	Pueblo and Arkansas Valley Railroad	5,959
Elizabethtown	Wheeler	8,465
El Puerto de la Laguna	Wheeler	7,187
Emery's Ranch	Wheeler	6,080
Eureka Springs	Wheeler	4,239
Fort Bayard	Wheeler	6,318
Fort Defiance	Wheeler	7,042
Fort Union	Wheeler	6,711
Juan Lujan Spring	Wheeler	6,011
Kiowa Spring	Wheeler	7,226
Lachusca	Wheeler	6,703
La Glorieta	Wheeler	7,048
Laguna	Wheeler	6,266
La Monica Springs	Wheeler	7,735
La Placita	Wheeler	5,129
Las Sunitas	Wheeler	4,805
Las Tapiorcitas	Wheeler	8,810
La Veta	Wheeler	6,266
Los Brazos	Wheeler	7,321
Los Ceritos del Aguila	Wheeler	7,943
Los Chavez	Wheeler	4,775
Los Lunas	Wheeler	4,805
Los Machos	Wheeler	7,290
Los Ojos (Rio Chama)	Wheeler	7,273
Los Quelites	Wheeler	5,134
Los Tusos	Wheeler	7,537
Luceros	Wheeler	7,941
Luera Springs	Wheeler	7,650
McCarthy's Ranch	Wheeler	6,009
Mestiñuto	Wheeler	6,268
New Placer	Wheeler	6,667
Nutria	Wheeler	6,901
Nutrites Plaza	Wheeler	7,455
Ocaté	Pueblo and Arkansas Valley Railroad	5,996
Ojitos de las Cuevas	Wheeler	5,902
Ojo Amarillo	Wheeler	6,384
Ojo Caliente	Wheeler	5,594
Ojo de la Culebra	Wheeler	5,707
Ojo Datil	Wheeler	7,419
Ojo de Estancia	Wheeler	6,177
Ojo del Judio	Wheeler	9,289
Ojo de la Cazos	Wheeler	7,615
Ojo del Oso	Wheeler	5,902

ELEVATIONS OF TOWNS, ETC.—Continued.

New Mexico—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Ojo de los Valles	Wheeler	6,779
Ojo de Nuestra Signora	Wheeler	6,606
Ojo de la Tunisa	Wheeler	5,673
Ojo Galle	Wheeler	7,943
Ojos Calientes	Wheeler	5,594
Pedernal Waterhole	Wheeler	7,140
Peñasco	Wheeler	7,452
Plaza del Alcalde	Wheeler	5,756
Priest's Gap	Pueblo and Arkansas Valley Railroad	6,400
Pueblo Colorado	Wheeler	6,368
Pueblo Jemez	Wheeler	5,479
Pueblo Pintado	Wheeler	6,506
Pueblo San Juan	Wheeler	5,870
Pueblo Springs	Wheeler	6,363
Puerto Cito Spring	Wheeler	6,499
Rock Ranch	Wheeler	5,844
Sabinal	Wheeler	5,087
Sabinal Agency	Wheeler	4,757
San Antonio	Wheeler	4,958
San Antonio Valley	Wheeler	8,367
Sanchez Ranch	Wheeler	7,298
San Daño	Wheeler	8,366
San Felipe	Wheeler	5,007
San Ignacio	Wheeler	5,515
San Isidro	Wheeler	5,460
San Marcos Spring	Wheeler	6,056
San Mateo	Wheeler	7,323
San Rafael	Wheeler	6,509
Santa Ana	Wheeler	5,346
Santa Clara	Pueblo and Arkansas Valley Railroad	6,250
Santa Cruz	Wheeler	5,590
Santo Niño del Rincon	Wheeler	7,418
Sapello	Wheeler	6,876
Sapello	Pueblo and Arkansas Valley Railroad	6,563
Sayer's Ranch	Wheeler	6,694
Socorro	Wheeler	4,659
Stinking Springs	Wheeler	6,690
Stinking Springs	Wheeler	6,249
Taylor's Ranch	Wheeler	5,831
Tierra Amarilla	Wheeler	7,500
Tijeras	Wheeler	6,214
Van Brummer Park	Wheeler	8,557
Venado Spring	Wheeler	5,982
Vermejo	Wheeler	7,823
Volunteer Spring	Wheeler	7,106
Willow Spring	Wheeler	6,677
Willow Spring	Pueblo and Arkansas Valley Railroad	6,691

Texas.

Towns, &c.	Authority.	Elevation.
Alleyton	Galveston, Harrisburg and San Antonio Railroad.	190
Big Sandy	Texas and Pacific Railroad	337
Bonham	Texas and Pacific Railroad	582
Borden	Galveston, Harrisburg and San Antonio Railroad.	300
Clarksville	Texas and Pacific Railroad	464

ELEVATIONS OF TOWNS, ETC.—Continued.

Texas—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Columbus	Galveston, Harrisburg and San Antonio Railroad.	210
Converse	Galveston, Harrisburg and San Antonio Railroad.	718
Dallas	Crossing Houston and Texas Central and Texas and Pacific Railroad.	468
Dallas	Junction of Texas and Pacific with Wichita Railroad.	434
De Kalb	Texas and Pacific Railroad	422
East Bernard	Galveston, Harrisburg and San Antonio Railroad.	120
East Santa Clara	Galveston, Harrisburg and San Antonio Railroad.	630
Elmo	Texas and Pacific Railroad	502
Flatonia	Galveston, Harrisburg and San Antonio Railroad.	470
Forney	Texas and Pacific Railroad	470
Fort Worth	Texas and Pacific Railroad	625
Gladewater	Texas and Pacific Railroad	324
Grand Saline	Texas and Pacific Railroad	401
Harwood	Galveston, Harrisburg and San Antonio Railroad.	460
Honey Grove	Texas and Pacific Railroad	682
Houston	Galveston, Harrisburg and San Antonio Railroad.	50
Jefferson	Texas and Pacific Railroad	221
Kingsbury	Galveston, Harrisburg and San Antonio Railroad.	613
Longview	Texas and Pacific Railroad	336
Luling	Galveston, Harrisburg and San Antonio Railroad.	415
Marion	Galveston, Harrisburg and San Antonio Railroad.	563
Marshall	Texas and Pacific Railroad	371
Mesquite	Texas and Pacific Railroad	496
Mineola	Texas and Pacific Railroad	410
New Boston	Texas and Pacific Railroad	387
Paris	Texas and Pacific Railroad	592
Pierce Junction	Galveston, Harrisburg and San Antonio Railroad.	60
Random	Galveston, Harrisburg and San Antonio Railroad.	90
Richmond	Galveston, Harrisburg and San Antonio Railroad.	70
San Antonio	Galveston, Harrisburg and San Antonio Railroad.	680
Schulenberg	Galveston, Harrisburg and San Antonio Railroad.	338
Seguin	Galveston, Harrisburg and San Antonio Railroad.	556
Sherman	Texas and Pacific Railroad	747
Terrell	Texas and Pacific Railroad	515
Texarkana	Junction of Texas and Pacific with Saint Louis, Iron Mountain and Southern Railroad.	281
Texarkana	Junction of Texas and Pacific with Texarkana and Jefferson Division.	358
Upson	Galveston, Harrisburg and San Antonio Railroad.	685
Wailder	Galveston, Harrisburg and San Antonio Railroad.	375

ELEVATIONS OF TOWNS, ETC.—Continued.

Texas—Continued.

Towns, &c.	Authority.	Elevation.
		Feet.
Weimar	Galveston, Harrisburg and San Antonio Railroad.	417
West Bernard	Galveston, Harrisburg and San Antonio Railroad.	160
Wills Point	Texas and Pacific Railroad	531

Utah.

Towns, &c.	Authority.	Elevation.
Antelope Spring	Wheeler	6,702
Antelope Spring, upper	Wheeler	7,144
Beaver, Astro. Station	Wheeler	5,916
Berry's Springs	Wheeler	2,810
Brigham City	Utah and Northern Railroad	4,323
Camp Douglass, astro. monument	Level	5,024
Castle Rock	Union Pacific Railroad	6,236
Deep Creek Settlement	King	5,127
Devil's Gate	Union Pacific Railroad	4,809
Echo	Union Pacific Railroad	5,472
El Vado de los Padres (Colorado River)	Wheeler	3,194
Glencoe	Wheeler	5,221
Goshen	Wheeler	4,482
Hooper's Ranch, Skull Valley	King	4,365
Kanab	Wheeler	5,072
Lee's Springs	Wheeler	6,883
Lehi	Wheeler	4,596
Little Cottonwood	Wheeler	4,359
Logan	Utah and Northern Railroad	4,509
Mendon	Utah and Northern Railroad	4,460
Mount Pleasant	Wheeler	5,875
Ogden, astro. observatory	Wheeler	4,377
Pleasant Valley	Wheeler	7,539
Provo	Wheeler	4,544
Richmond	Utah and Northern Railroad	4,537
Salt Lake City, observatory	Wheeler	4,330
Salt Lake City, city base, rock in front of temple	From railroad levels	4,336
Salt Lake City, barometer in United States signal office in 1877	From railroad levels	4,354
Sevier River Bridge	Wheeler	5,283
Shunesburg	Wheeler	3,921
Skull Valley	King	4,356
Skumpah	Wheeler	6,000
Smithfield	Utah and Northern Railroad	4,565
Taylor's Mill	Union Pacific Railroad	4,353
Uinta	Union Pacific Railroad	4,498
Wahsatch	Union Pacific Railroad	6,812
Weber Quarry	Union Pacific Railroad	5,236
White Rock Spring, Skull Valley	King	5,542
Young's Ranch	Wheeler	5,642

ELEVATIONS OF TOWNS, ETC.—Continued.

Wyoming.

Towns, &c.	Authority.	Elevation.
		Feet.
Aspen	Union Pacific Railroad	7,396
Baxter	Union Pacific Railroad	6,308
Benton	Union Pacific Railroad	6,588
Bitter Creek	Union Pacific Railroad	6,710
Black Buttes	Union Pacific Railroad	6,626
Bridger	Union Pacific Railroad	6,625
Bryan	Union Pacific Railroad	6,186
Buford	Union Pacific Railroad	7,808
Carbon	Union Pacific Railroad	6,781
Carter	Union Pacific Railroad	6,505
Church Buttes	Union Pacific Railroad	6,357
Como	Union Pacific Railroad	6,730
Cooper's Lake	Union Pacific Railroad	7,078
Creston	Union Pacific Railroad	7,055
Dana	Union Pacific Railroad	6,871
Evanston	Union Pacific Railroad	6,757
Fillmore	Union Pacific Railroad	6,821
Fort Laramie, flag-staff	Union Pacific Railroad	4,290
Fort Russell	Union Pacific Railroad	6,180
Fort Sanders	Union Pacific Railroad	7,194
Granger	Union Pacific Railroad	6,278
Granite Cañon	Union Pacific Railroad	7,336
Green River bridge	Union Pacific Railroad	6,101
Greenville	Union Pacific Railroad	6,507
Hampton	Union Pacific Railroad	6,420
Harney	Union Pacific Railroad	7,709
Hazard	Union Pacific Railroad	6,340
Hazard, junction with Colorado Central Railroad	Union Pacific Railroad	6,320
Howell	Union Pacific Railroad	7,128
Laramie	Union Pacific Railroad	7,171
Latham	Union Pacific Railroad	6,939
Lawrence	Union Pacific Railroad	6,198
Lookout	Union Pacific Railroad	7,189
Marston	Union Pacific Railroad	6,221
Medicine Bow	Union Pacific Railroad	6,582
Miser	Union Pacific Railroad	6,960
New Harney	Union Pacific Railroad	7,572
Otto	Union Pacific Railroad	6,949
Percy	Union Pacific Railroad	6,981
Phillip's Ranch	Union Pacific Railroad	5,300
Piedmont	Union Pacific Railroad	7,067
Point of Rocks	Union Pacific Railroad	6,550
Rawlins	Union Pacific Railroad	6,761
Red Butte	Union Pacific Railroad	7,324
Red Desert	Union Pacific Railroad	6,712
Rock Creek	Union Pacific Railroad	6,735
Rock Springs	Union Pacific Railroad	6,249
Saint Mary's	Union Pacific Railroad	6,781
Salt Wells	Union Pacific Railroad	6,383
Separation	Union Pacific Railroad	6,684
Sherman	Union Pacific Railroad	8,262
Simpson	Union Pacific Railroad	7,256
Summit	Union Pacific Railroad	6,926
Table Rock	Union Pacific Railroad	6,850
Thayer	Union Pacific Railroad	6,467
Tie Siding	Union Pacific Railroad	7,911
Tipton	Union Pacific Railroad	7,018
Washakie	Union Pacific Railroad	6,723
Willis	Union Pacific Railroad	7,060
Wolcott	Union Pacific Railroad	6,639
Wyoming	Union Pacific Railroad	7,099

MOUNTAIN PEAKS AND RANGES.

Cordilleras of North America.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Adam's Head	Sevier Plateau	Utah	Powell	11,087
Aqua Fria Peak		N. M	Wheeler	10,965
Albion Peak	Little Cedar	Nev	King	8,391
Alter Peak		Colo	Wheeler	13,254
Antler Peak	Battle M't'ns	Nev	King	8,433
Antoro Peak		Colo	Wheeler	13,497
Mount Arkansas	Park	Colo	Hayden	13,647
Augusta Mountains		Nev	King	Nearly 10,000
Bald Mountains	Uinta	Utah	King	11,975
Baldy Peak	Uinta	Utah	Wheeler	11,730
Banded Peak	San Juan	Colo	Wheeler	12,824
Banded Peak	San Juan	Colo	Hayden	12,860
Mount Bangs	Virgin	Utah	Powell	7,950
Bare Mountain		Cal	Wheeler	6,039
Basalt Peak		Colo	Hayden	11,906
Bear Valley Peak	Markagunt Plateau.	Utah	Powell	9,274
Beaver Dam Mountains	Virgin	Utah	Powell	8,100
Mount Belknap	Tushar	Utah	Powell	12,114
Belleview Peak		Colo	Wheeler	12,673
Bison Peak	Front	Colo	Hayden	12,237
Blackhead	San Juan	Colo	Hayden	12,514
Blacktail Peak	Uinta	Utah	King	9,943
Blodget's Peak	Front	Colo	Hayden	9,500
Blue Mountain	Sevier Plateau	Utah	Powell	11,071
Mount Bonneville	Onaqui	Nev	King	11,200
Mount Bonpland	E. Humboldt	Nev	King	11,321
Boston Peak		Cal	Wheeler	6,519
Boulder Peak		Colo	Wheeler	12,417
Boundary Peak	Sangre de Cristo	Colo	Hayden	12,840
Brazos Peak	San Juan	Colo	Hayden	11,274
Breckenridge Mountain		Cal	Wheeler	7,418
Mount Brian	Markagunt Plateau.	Utah	Powell	11,178
Brown's Peak		Utah	Powell	5,392
Buffalo Peak	W. Humboldt	Nev	King	8,387
Bull Run Mountain		Nev	Wheeler	9,040
Bunker Hill	Toyabe	Nev	Wheeler	11,735
Carico Peak	Cortez	Nev	King	8,035
Carlin Peak	Cortez	Nev	King	7,754
Carrizo Peak		N. M.	Wheeler	9,390
Cedar Mountains		Nev	King	6,500
Central Peak	Laramie	Wyo	King	8,774
Cerro Gordo Peak	Grapevine	Nev	Wheeler	9,432
Chama Peak	San Juan	Colo	Wheeler	12,248
Chataya Peak	Pahute	Nev	King	7,766
Citadel Peak	Raft River	Idaho	King	6,700
Clayton's Peak	Wahsatch	Utah	King	11,889
"Cone"		N. M.	Wheeler	12,690
Conejos Peak	Coast	Cal	Wheeler	2,565
Conejos Peak	San Juan	Colo.	Hayden	13,183
Cortez Peak	Cortez	Nev	King	8,363
Craggy Head	Pine Valley	Utah	Powell	8,250
Cub Mountain	Front	Colo	Hayden	10,623
Cucamonga Peak		Cal	Wheeler	8,529
Cuerno Verde Peak		Colo	Wheeler	12,305
Dalton Peak	Cortez	Nev	King	9,232
Mount Dalton	Sevier Plateau	Utah	Powell	10,480

MOUNTAIN PEAKS AND RANGES—Continued.

Cordilleras of North America—Continued.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Mount Delano	Tushar	Utah	Powell	12,159
Mount Dellenbaugh	Shiwits Plateau	Utah	Powell	6,650
Del Norte Peak	San Juan	Colo	Wheeler	13,084
Diamond Range		Nev	King	2,000 to 2,500 above valley.
Dunn's Peak		Colo	Wheeler	13,502
Eagle Peak	Front	Colo	Hayden	8,440
Eagle River Peak	Park	Colo	Hayden	12,648
Egan Range		Nev	King	5,000 above base.
Elizabeth Peak		N. M.	Wheeler	12,491
Mount Ellen	Henry	Utah	Powell	11,389
Mount Ellsworth	Henry	Utah	Powell	8,280
Escobas Peak		N. M.	Wheeler	8,278
Escudilla Peak			Wheeler	10,691
Euclid Peak	Fountain Head Hills.	Nev	King	7,725
Eugene Peak	Eugene	Nev	King	7,548
Fairview Peak	Toano	Nev	King	8,199
Farnum's Peak	Front	Colo	Hayden	11,400
Fish Lake Mountain	Unkapagu	Utah	Powell	11,578
Freeman's Peak	Front	Colo	Hayden	11,600
Frustum	San Juan	Colo	Wheeler	13,190
Gibson Peak		Colo	Wheeler	13,729
Gilson's Crest	Unkapagu	Utah	Powell	11,000
Glacier Peak	Front	Colo	Hayden	12,654
Glacier Peak		Colo	Wheeler	13,360
Globe Peak	Toyabe	Nev	Wheeler	11,237
Golden Peak	Front	Colo	Hayden	9,650
Gosiute Peak	Egan	Nev	King	10,491
Grand Peak	Pequop	Nev	King	8,307
Griffith Mountain	Front	Colo	Wheeler	11,589
Grizzly Peak		Cal	Wheeler	11,723
Hahn Peak	Inyo	Nev	King	11,298
Heber Mountain	Wahsatch	Utah	King	10,138
Helmet Peak	La Plata	Colo	Hayden	12,042
Hermano Peak	La Plata	Colo	Hayden	9,014
Hesperu's Peak	La Plata	Colo	Hayden	13,159
Mount Hilgard	Unkapagu	Utah	Powell	11,453
Mount Hillers	Henry	Utah	Powell	10,645
Mount Horeb		Utah	King	7,831
Humphrey's Peak (Mount San Francisco)		Ariz	Wheeler	12,562
Hurricane Peak		Colo	Wheeler	13,565
Ibenpah Mountains		Nev	King	10,000, approx.
Inyo Peak	Inyo	Nev	King	11,337
Jemes Mountain		N. M.	Wheeler	9,534
Jemas Peak		N. M.	Wheeler	8,569
Joe's Peak		Cal	Wheeler	9,712
Karparowitz Peak	Karparowitz	Utah	Powell	9,095
Katharine's Peak	Pahvant	Utah	Powell	9,902
Kenosha Cones	Front	Colo	Hayden	12,350 12,340
Kit Carson's Peak	Sangre de Cristo	Colo	Hayden	14,100
Lake Peak		N. M.	Wheeler	12,405
Lake Range		Nev	King	3,000 to 3,500 above base.

MOUNTAIN PEAKS AND RANGES—Continued.

Cordilleras of North America—Continued.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Lakeside Mountains		Utah	King	6,500, average
La Motte Peak	Uinta	Utah	King	12,892
Laughlin's Peak		N. M.	Wheeler	8,950
La Veta Peak		Colo.	Wheeler	11,654
Lewiston Peak	Oquirrh	Utah	Wheeler	10,623
Little Creek Peak	Markagunt Plat.	Utah	Powell	9,971
Logan Peak	Uinkaret	Utah	Powell	7,950
Lone Cone	San Juan	Colo.	Hayden	12,761
Lone Peak	Wahsatch	Utah	King	11,295
Lookout Mountain	Gosiute	Nev	King	9,645
Lost Park Mountain	Front	Colo.	Hayden	11,800
Maggie Peak	Seetoya	Nev	King	8,167
Mahogany Peak	Egan	Nev	King	9,241
Malaya Peak	Coast	Cal	Wheeler	2,320
Marmot Peak	Park	Colo.	Hayden	11,600
Marysvale Peak	Sevier Plateau	Utah	Powell	10,359
Mount Marvine	Unkapagu	Utah	Powell	11,598
Matinango Peak	Darwin	Nev	Wheeler	8,845
McClellan Peak		Colo.	Wheeler	13,842
Meadow Mountain	Sierra Nevada	Cal	Wheeler	11,734
Meig's Peak		Colo.	Wheeler	13,393
Midget Crest	Tushar	Utah	Powell	11,414
Moleen Peak	Elko	Nev	King	7,339
Monroe Peak	Sevier Plateau	Utah	Powell	11,240
Mount Moses	Fish Creek	Utah	Wheeler	8,725
Musinia Peak	Musinia Plateau	Utah	Powell	10,764
Nacimiento Peak		N. M.	Wheeler	10,045
Nannie's Peak	Seetoya	Nev	King	9,046
Navajo Mountain		Ariz	Powell	10,038
New York Mountain	Inyo	Nev	Wheeler	10,594
Ojo del Alto Peak		N. M.	Wheeler	6,950
Olancha Peak	Sierra Nevada	Cal	Wheeler	12,250
Old Bony Mountain	Coast	Cal	Wheeler	1,892
Ombe Mountains		Nev	King	8,000 to 10,000
Oquirrh Mountains		Nev	King	5,000 to 6,000 above base.
Ord Peak		N. M.	Wheeler	10,093
Ormsby Peak	Virginia	Nev	King	8,388
Oxford Peak	Pequop	Nev	King	7,556
Pagosa Peak		Colo.	Wheeler	12,676
Pahsupp Range		Nev	King	2,000 to 2,500 above base.
Pahtson Range		Nev	King	3,000 above base.
Paleta Peak	Coast	Cal	Wheeler	4,507
Pass Mountain	Front	Colo.	Hayden	11,200
Pastora Peak	Carriso	N. M	Hayden	9,332
Peavine Mountain	Virginia	Nev	King	6,217
Peko Peak		Nev	King	6,620
Mount Pennele	Henry	Utah	Powell	11,855
Pilot Peak	Ombe	Utah	Wheeler	10,900
Pine Valley Mountain	Pine Valley	Utah	Powell	10,250
Piñon Range		Nev	King	3,000 to 4,000 above valley.

MOUNTAIN PEAKS AND RANGES—Continued.

Cordilleras of North America—Continued.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Pintado Peak	San Juan	Colo	Hayden	13,176
Pinto Peak	Piñon	Nev	King	8,715
Placer Mountain		N. M	Wheeler	8,827
Platte Pulpit	Front	Colo	Hayden	8,000
Poston Peak	Toyabe	Nev	Wheeler	12,143
Prospect Hill	Front	Colo	Hayden	8,893
Prospect Peak		Colo	Wheeler	9,909
Provo Peak	Wahsatch	Utah	Wheeler	11,066
Ptarmigan Peak	Park	Colo	Hayden	13,200
Raft River Range		Idaho	King	7,000
Railroad Peak	Cortez	Nev	King	8,569
Raven's Nest Peak	Piñon	Nev	King	8,393
Red Peak	Park	Colo	Hayden	12,382
Rhyolite Peak	Front	Colo	Hayden	10,400
Robert's Peak	Piñon	Nev	King	10,132
Rose Mountain	Owyhee	Nev	King	7,949
Round Mountain		Colo	Wheeler	12,946
San Antonio Peak	Sierra Nevada	Cal	Wheeler	10,191
San Antonio Mountain	Sierra Nevada	N. M	Wheeler	10,912
Sandia Peak		N. M	Wheeler	10,600
San Fernando Peak	Coast	Cal	Wheeler	3,793
San Juan Needles		Colo	Hayden	1,680 above base.
San Mateo Peak		N. M	Wheeler	10,336
Sante Fé Peak		N. M	Wheeler	12,661
Santa Fé Baldy Peak		N. M	Wheeler	12,499
Scraggy Butte	Front	Colo	Hayden	8,600
Seetoya Peak	Seetoya	Nev	King	9,545
Shoshone Peak	Shoshone	Nev	King	9,760
Signal Peak	Carriso	Ariz	Wheeler	9,330
Signal Peak	Havillah	Nev	King	9,387
Signal Butte	Hayden Park	Colo	Hayden	8,800
Silesia Peak		Colo	Wheeler	13,699
Spanish Peak (west)	Sangre de Cristo	Colo	Wheeler	13,718
Spanish Peak	Virginia	Nev	King	7,463
Spruce Mountain	Pequop	Nev	King	11,041
Star Peak	W. Humboldt	Nev	King	9,925
Stuart's Peak		Colo	Wheeler	14,032
Stony Peak	Shoshone Mesa	Nev	King	6,650
Stormy Peak	Front	Colo	Hayden	9,200
Sue's Peak	Battle	Nev	King	8,477
Sugarloaf	Front	Colo	Hayden	8,933
Sunday Peak		Cal	Wheeler	11,089
Sunday Peak		N. M	Wheeler	6,030
Taos Peak	Sangre de Cristo	N. M	Wheeler	13,145
Tapiacitas Peak		N. M	Wheeler	8,870
Taroggua Peak	Pahute	Nev	King	8,751
Tarryall Peak	Front	Colo	Hayden	11,650
Mount Taylor		N. M	Wheeler	11,391
Telescope Peak	Telescope	Nev	Wheeler	10,938
Tenabo Peak	Cortez	Nev	King	9,240
Terrace Mountains		Utah	King	6,900
Terrell's Ridge	Unkapagu	Utah	Powell	11,380
Tetilla Peak		N. M	Wheeler	7,060
Tétons	Sangre de Cristo	Colo	Wheeler	14,198
Mount Thomas	Sierra Blanca	Colo	Wheeler	11,496
Thousand Lake Mountain		Utah	Powell	11,229
Thunder Butte	Front	Colo	Hayden	9,500
Thunder Peak		N. M	Wheeler	9,122

MOUNTAIN PEAKS AND RANGES—Continued.

Cordilleras of North America—Continued.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Timpanogos Mountain	Wahsatch	Utah	King	11,957
Tipton Peak		Ariz	Wheeler	7,364
Toolucha Peak		Cal	Wheeler	7,022
Tooele Peak	Oquirrh	Utah	Wheeler	10,396
Tres Hermanos Peak		N. M	Wheeler	7,151
Trinchera Peak		N. M	Wheeler	13,681
Trinity Peak	Montezuma	Nev	King	7,500
Troublesome Peak		Colo	Hayden	11,500
Truchas Peak		N. M	Wheeler	13,750
Truckee Range		Nev	King	2,500 to 3,000 above base.
Mount Trumbull	Uinkaret Plateau	Utah	Powell	8,187
Twin Peak	Wahsatch	Utah	King	11,560
Uncompahgre Peak	San Juan	Colo	Wheeler	14,408
Upriver Peak	Elko	Nev	King	7,620
Ute Peak		Colo	Wheeler	10,152
Ute Peak	Wahsatch	Utah	King	8,067
Ute Peak	El Laté	Colo	Hayden	9,884
Venado Peak	Sangre de Cristo	Colo	Hayden	12,800
Virgin Peak	Virgin	Utah	Powell	8,000
Virginia Peak	Front	Colo	Hayden	10,600
Vulcan Crest		Colo	Wheeler	13,971
Mount Washington		Cal	Wheeler	10,802
Waucoba Peak		Cal	Wheeler	11,261
Wauguyhi Peak	Grapevine	Nev	King	8,528
Whale Peak	Front	Colo	Hayden	13,104
Whiteface Peak		Colo	Hayden	11,493
White Granite Mountain		Cal	Wheeler	7,045
Whitney's Peak (sic)	Sierra Nevada	Cal	Wheeler	14,448
Winnemucca Peak		Nev	King	6,869

Passes in the Cordilleras.

Argentine	Front	Colo	Wheeler	13,286
Arkansas	Park	Colo	Wheeler	11,445
Bear Creek		Colo	Wheeler	11,606
Breckenridge		Colo	Wheeler	11,503
Cajon	San Bernardino	Cal	Wheeler	4,195
Cerro Gordo	Sierra Nevada	Cal	Wheeler	8,874
Cucharas		Colo	Wheeler	9,994
Currant Creek		Colo	Wheeler	9,654
Fossil	Piñon	Nev	King	8,028
Georgia	Front	Colo	Wheeler	11,770
Hancock		Colo	Wheeler	12,263
Hoosier	Park	Colo	Wheeler	11,517
Indian Creek		Colo	Wheeler	9,803
Ives	Toano	Nev	King	6,672
Lake Creek	Sawatch	Colo	Wheeler	12,226
Long's Cañon	Sangre de Cristo	Colo	Wheeler	8,402
McKinney's	Pahute	Nev	King	5,592
Mesquite		Colo	Wheeler	13,308
Mosca	Sangre de Cristo	Colo	Wheeler	9,787
Piñon	Piñon	Nev	King	6,533
Ponil	Sangre de Crisio	Colo	Wheeler	9,848

MOUNTAIN PEAKS AND RANGES—Continued.

Passes in the Cordilleras—Continued.

Name.	Range.	State or Territory.	Authority.	Altitude.
				Feet.
Raton	Raton Hills	Colo	Wheeler	7,893
San Gorgonio	Coast	Cal	Wheeler	2,745
Sangre de Cristo	Sangre de Cristo	Colo	Wheeler	9,578
Spring Valley	W. Humboldt	Nev	King	6,251
Sunset Gap		Ariz	Wheeler	5,755
Taos	Sangre de Cristo	N. M	Wheeler	9,282
Tennessee		Colo	Wheeler	10,592
Trout Creek	Park	Colo	Wheeler	9,464
Twin Creek		Colo	Wheeler	8,568
Veta	Sangre de Cristo	Colo	Wheeler	9,494
Washington		Ariz	Wheeler	8,825
Weston's	Park	Colo	Wheeler	12,109

Art. XXIII.—Generic Arrangement of the Bees allied to Melissodes and Anthophora.

By W. H. Patton.

The object of the present paper is to bring to light a number of characters either unemployed hitherto by English writers or entirely new, to describe several new generic types, and to relieve the American catalogue of a part of the confusion which has been caused by the recent description of a multitude of species without regard to their affinities or generic position.

The genera here treated may be divided into two *groups*, to which the names *Euceræ* and *Anthophoræ* may be applied. *Plistotrichia* Morawitz, an Algerian genus said to resemble *Tetralonia*, does not appear to have been sufficiently well described to have its position determined. The Brazilian genus *Monœca* Lepel. et Serv., with the inner spur of the posterior tibiæ serrate ("*visiblement dentée en scie*"), appears to be related to *Ancyloscelis* rather than to *Melissodes*. All *Euceræ* and *Anthophoræ* examined by me have both spurs of the posterior tibiæ, as well as the spur of the intermediate tibiæ, channelled above and with both the edges finely pectinate.

EUCERÆ.

Paraglossæ as long as the labial palpi, setaceous, ciliate on one side; labial palpi wing-margined, the first joint the longest, the third joint not continuous with the second; maxillary palpi with the basal joint appressed to the maxilla and incrassate, the second joint attached obliquely, the maxillary palpi not distinctly flattened. Border of the labrum not thickened or deflexed. Ocelli in a line or curve. Wings uniformly pubescent, the limb finely punctured; stigma small; marginal cell lanceolate, not appendiculate; origin of the first recurrent nervure beyond the origin of the cubitus. Posterior tibiæ with an enclosure at the base in both sexes. In the male the antennæ elongate and the clypeus more or less yellow.

A. Two submarginal cells.

EUCERA Scop.

Maxillary palpi six-jointed.

There exists an undescribed genus, closely allied to *Eucera*, having only four joints in the maxillary palpi.

B. Three submarginal cells, the third longer than broad, and much narrowed towards the marginal.

MELISSODES Latr.

Type: *Melissodes rustica* (Say) Smith.

Maxillary palpi four-jointed, the fourth joint often minute; first joint of the labial palpi twice as long as the second; labrum rounded anteriorly and either notched, sinuate, truncate (in some males), or entire (*bimaculata* ♂ ♀); clypeus rarely elevated (*desponsa*); mandibles entire at the tip (in ♂ *desponsa* notched); antennæ of the male as long as the thorax (*texana*) or longer; inner claw of the posterior tarsi of the male longer than the outer claw and its tooth often smaller (in *desponsa* the claws alike); claws of the four posterior tarsi in the female armed with a short, stout tooth which is nearly parallel to the claw; two apical segments of the male abdomen armed with lateral teeth; enclosure on the seventh segment of the male of moderate width, notched on each side just before the tip; externo-medial nervure of the anterior wings obliquely, not abruptly, bent back just beyond the origin of the first recurrent nervure; basal lobe of the posterior wings extending nearly to the apex of the submedial cell; *scopa of the posterior legs in the female long, dense, and plumose or matted.*

The female of this genus may be easily distinguished by the great size of the pollen-brush, which somewhat resembles that of *Diadasia.*

TETRALONIA Spin.

Syn. *Macrocera* Latr. from Spin. MSS. (nec Meigen).

Type: *Macrocera antennata* (Latr.).

Maxillary palpi five-jointed; mandibles entire at the tip. It is probable that the genus presents the following characters also: bend of the externo-medial nervure not abrupt; basal lobe of posterior wings extending to the middle of the submedial cell; *scopa on posterior tibiæ in the female long and dense;* labrum notched.

Latreille, who first described *Tetralonia* (under the preoccupied name *Macrocera*), states that the maxillary palpi are five-jointed.* A new name becomes necessary for those species with six joints in the maxillary palpi, notwithstanding that both Lepeletier and Smith have given the latter character to *Tetralonia;* for Spinola, in changing the name *Macrocera* to *Tetralonia*, gave no description of the genus, but adopted it from Latreille as it stood.

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* But in the *Voyage de Humboldt et Bonpland; Observ. de Zool. et d'An. Comp.* vol. i, p. 283 (1811), Latreille mentions the genus *Macrocera* with the single species *M. antennata* Spin., and gives the following generic characters: "Palpes maxillaires n'ayant que cinq articles distincts; le sixième presque nue ou peu apparent. (Trois cellules sous-marginales.)" In the *Encycl. Méth.* (1825), the genus is quoted from Latreille's *Nouv. Diction. d'hist. nat.* 2ᵉ *édit.*

XENOGLOSSA Smith.

Type: *X. fulva* Smith, C. H. B. M. ii, 315; pl. vii, f. 8, ♀; pl. xii, f. 7 maxilla, f. 8 wing.

In Smith's description of *Xenoglossa* there are only two characters which do not apply to the genus *Melissodes* as well—the five-jointed maxillary palpi and the loose scopa of the posterior tibiæ. The description and figure of the antennæ may mean anything or nothing, and the statement that the claws are "bifid" is, as his figure shows, incorrect. As *pruinosa* agrees with the description in all essential points, there ought to be no doubt of its belonging to the genus. Yet, as I am unacquainted with the type of the genus, it is with some hesitation that I have referred *pruinosa* to *Xenoglossa*.

XENOGLOSSA PRUINOSA.

Macrocera pruinosa Say, Bost. Jour. N. H. i, 405.

This species presents the following generic characters. *Maxillary palpi five-jointed*, second and third joints subequal, fourth and fifth joints subequal and together equal in length to the third, the fifth joint slender; first joint of the labial palpi little longer than the second; labrum transverse quadrate, notched in the middle; clypeus elevated; mandibles of the female entire, of the male bidentate at the tip; antennæ of the male reaching to the base of the abdomen; posterior tarsal claws of the male alike; tarsal claws of the female armed with a slender and straight tooth, which stands free from the claw; apical segments of the male abdomen unarmed, enclosure on the seventh segment broad; externo-medial nervure not abruptly bent back just beyond the origin of the first recurrent nervure; basal lobe of the posterior wings extending nearly to the apex of the submedial cell; *scopa of the posterior legs in the female long, thin*, and finely plumose.

The loose scopa seems particularly adapted to retain the large, spiny globes which form the pollen of the pumpkin. In the blossoms of this plant these bees delight to revel.

SYNHALONIA n. g. (σύν+ἁλωνία).

Syn. *Macrocera* Lepel. (nec Latr.).
Syn. *Tetralonia* Smith (nec Spin.).

Type: *S. fulvitarsis.*

Maxillary palpi six-jointed; first joint of the labial palpi twice as long as the second; clypeus elevated (little elevated in *albata*); labrum transverse quadrate, notched in the middle; antennæ of the male greatly lengthened; tip of the mandibles slightly notched or bidentate (*acerba* and *edwardsii* excepted?); apical segments of the male abdomen not dentate (or in *honesta* and *albata* the sixth segment armed with a small tooth), the enclosure on the seventh segment narrow; claws of the posterior tarsi of the male alike (excepting in *edwardsii*, which has the inner claw longer than the outer, but its tooth of the same length as in the outer claw); claws of the four posterior tarsi in the female armed with a short and stout tooth, which curves away from the claw; externo-medial nervure of the fore wing bent abruptly back just beyond the origin of the first recurrent nervure; basal lobe of the posterior wings extending only to the middle of the submedial cell; *scopa of the posterior legs of the female short, dense, and not conspicuously plumose.*

SYNHALONIA FULVITARSIS.

♂, *Melissodes fulvitarsis* Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 196.

♀, Length 12^{mm}. Black, the mandibles sometimes with a testaceous spot near the tip, clypeus with the punctures distinct; the pubescence of the head black, a tuft on the vertex ochraceous, the thorax above and the first segment of the abdomen clothed with ochraceous pubescence, the second segment with a more or less distinct band of pale pubescence, tip of the abdomen fuscous; legs black, anterior tarsi piceous towards the tip, the pubescence beneath fuscous, the pubescence on the intermediate tibiæ externally tinged with fulvous, the intermediate tarsi pale piceous, clothed with fulvous pubescence, posterior tibiæ, except at base, and the posterior tarsi testaceous and clothed with bright fulvous pubescence.—Como, Wyoming; S. W. Williston.

SYNHALONIA SPECIOSA.

♀, *Melissodes speciosa* Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 198.

SYNHALONIA FRATER.

♂, *Melissodes frater* Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 197.

SYNHALONIA HONESTA.

♂, *Melissodes honesta* Cress., Trans. Am. Ent. Soc. iv, p. 279.

SYNHALONIA ACERBA.

♀, *Melissodes acerba* Cress., Trans. Am. Ent. Soc. vii, p. 210.

This may be the ♀ of *edwardsii.*

SYNHALONIA EDWARDSII.

♂, *Melissodes Edwardsii* Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 195.

SYNHALONIA INTRUDENS.

♂, *Melissodes intrudens* Cress., Trans. Am. Ent. Soc. vii, p. 225.

SYNHALONIA ALBATA.

♂ ♀, *Melissodes albata* Cress., Trans. Am. Ent. Soc. iv, p. 281.

S. albata differs from the other species in many particulars and should form a distinct section of the genus. The clypeus is little elevated, the three apical joints of the maxillary palpi form a subfusiform mass equal in length to the third joint, the fifth and sixth joints being minute, the mandibles in both sexes are entire at the tip, the tooth of the claws of the four posterior tarsi in the female is straight and of moderate length, the externo-medial nervure is not so abruptly bent in the female as in the male, and the basal lobe of the posterior wings is as long as the submedial cell.

ANTHOPHORÆ.

Paraglossæ shorter than the first joint of the labial palpi, lanceolate, not pubescent; maxillary palpi with the basal joint free from the maxilla, in a line with the second joint and not incrassate. Labrum with a deflexed and thickened margin (*Habropoda* excepted), the margin not notched. Antennæ of the male not elongated (*Habropoda* excepted). Submarginal cells three.

The European genera *Saropoda* Latr., with five-jointed maxillary palpi according to Latreille, or with four-jointed maxillary palpi according to Smith, and *Melliturga* Latr., with six-jointed maxillary palpi, differ from the genera here treated in having the third joint of the labial palpi continuous with the second joint. In the other genera the maxillary palpi are six-jointed.

A. Ocelli in a line or curve; clypeus of the male not colored. Maxillary palpi flattened; basal joints of labial palpi not wing-margined. Pubescence of legs conspicuously plumose. Stigma present; marginal cell lanceolate; third submarginal cell longer than broad and much narrowed towards the marginal; origin of the first recurrent nervure beyond the origin of the cubital nervure. Pubescence of the wings continuous; limb of the wing not traversed by distinct lines free of punctures representing the continuation of the cubital and externo-medial nervures. Basal lobe of the posterior wings extending beyond the middle (*Emphor*) or to the apex of the submedial cell.

DIADASIA n. g. (διά+δασεῖα).

Type: *D. enavata.*

♀, Head small, narrower than the thorax; clypeus little elevated; ocelli in a line; labrum with its anterior border slightly angular, elevated and forming a slight tooth in the middle, the edge deflexed. Mandibles arising close to the eyes, unarmed. Proboscis not elongate. Maxillary palpi somewhat flattened, joints two and three each nearly twice as long as the first joint, the apical joints diminishing in length. Labial palpi with the first joint longer than the second. Enclosure at the base of the posterior tibiæ well marked; the legs with long and dense pubescence forming the scopa; tarsal claws swollen. Anterior wings with the stigma of moderate size; the marginal cell lanceolate, the tip pointed but not appendiculate; second submarginal cell quadrate, receiving the first recurrent nervure near the apex; third submarginal cell much narrowed towards the marginal; limb of the wing moderately punctured; externo-medial nervure abruptly bent just beyond the origin of the first recurrent nervure; anal lobe of the posterior wings equalling the submedial cell in length. The lateral impressed lines of the abdominal segments indistinct; area on the sixth segment narrow; venter with long and dense pubescence.

♂, Antennæ little longer than in the female. Labrum with the deflexed edge broader and the anterior border scarcely angulated. Legs stout, but not unusually long; enclosure at base of posterior tibiæ not defined; pulvillus of the usual size; tooth of the claws of the four posterior tarsi considerably shorter than the blunt claw. Pubescence on the posterior legs dense, and as long as in *Syllonia* ♀. Upper surface as well as the under surface of the abdomen with long and dense pubescence.

DIADASIA ENAVATA.

Melissodes enavata Cress., Trans. Am. Ent. Soc. iv, p. 280, ♀.
Melissodes ? ursina Cress., Trans. Am. Ent. Soc. iv, p. 281, ♂.
Melissodes ? densa Cress., Trans. Am. Ent. Soc. iv, p. 282, ♂.

DIADASIA AUSTRALIS.

Melissodes australis Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 214, ♂ ♀.

DIADASIA DIMINUTA.

Melissodes diminuta Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 215, ♂.

EMPHOR n. g. (ἐν + φώρ).

Type: *Emphor bombiformis.*
Melissodes bombiformis Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 219, ♂ ♀.

♂, Clypeus little elevated; ocelli in a curved line; labrum transverse quadrate, the sides slightly rounded out, the anterior border forming a slightly elevated ridge, the edge deflexed to form a distinct face at right angles to the upper face, the corners not angulated. Mandibles arising close to the eyes, unarmed, suddenly curved near the base. Proboscis not lengthened; maxillary palpi flattened, the apical joints more slender, the first, fourth, fifth, and sixth joints subequal, the second and third each twice as long as each of the others, the second joint with a fringe of hairs beneath near the tip; the two basal joints of the labial palpi equal in length. Antennæ reaching to the tegulæ. Posterior legs unusually long, the femora swollen, enclosure at base of tibiæ not defined, pulvillus unusually small, being minute. The pubescence of the legs short. Anterior wings with the stigma narrow and elongate; the marginal cell lanceolate, with a distinct straight appendiculation; second submarginal cell pentagonal, narrowed towards the marginal, not pointed at the base, but the sides symmetrical, the recurrent nervure received in the middle; third submarginal cell longer than broad, narrowed nearly one-half towards the marginal; limb of the wing coarsely punctured; externo-medial nervure very abruptly bent; anal lobe of the posterior wings extending beyond the middle, but not to the apex, of the submedial cell. Lateral impressed lines of the abdominal segments indistinct; no area on the apical segment; pubescence of the abdomen short and velvety.

ENTECHNIA n. g. (ἐντεχνία).

Type: *Entechnia taurea.*
Anthophora taurea Say, Bost. Jour. Nat. Hist. i, p. 410, ♂ ♀.

♀, Clypeus elevated; ocelli in a curved line; labrum quadrate, the anterior margin slightly rounded out and roughened, both the lateral and anterior edges abruptly deflexed, the inferior corners forming a prominent angle; mandibles arising close to the eyes, unarmed, suddenly curved near the base. Proboscis when folded extending to the base of the abdomen, slender; maxillary palpi flattened, first and second joints equal, third and fourth a little shorter and nearly equal, fifth not one-half as long as the fourth, sixth minute and much narrower than the fifth, third and fourth joints with a dense fringe of long fine pubescence on the lower edge; basal joints of the labial palpi slender, with a narrow membranous margin, first joint ciliate and not half the length of the second joint. An oval enclosure on the base of the posterior tibiæ; the scopa long and loose; pulvillus of the usual size. Stigma of the anterior wings small; marginal cell lanceolate, not appendiculate; second submarginal cell quadrate, the recurrent nervure received between the middle and the apex; third submarginal cell twice as long as broad, narrowed one-half towards the marginal; limb of the wing moderately punctured; externo-medial nervure abruptly bent; anal lobe of the posterior wings equalling the submedial cell in length. The lateral line on the abdominal segments slightly impressed; disk of the sixth segment with a glabrous, elevated area of a subtriangular form, the sides of the apical portion of the area being parallel and the apex obtuse; on each side of the tip of this area the apical segment armed with an erect, recurved spine; ventral segment fringed with long loose pubescence.

♂, The ciliation on the third and fourth joints of the maxillary palpi very short and not conspicuous. Antennæ no longer than in the female. Enclosure at the base of the posterior tibiæ not distinct; posterior legs elongate, the femora swollen, the pubescence short. Apical segment of the abdomen with no glabrous area and the tip not armed; pubescence of the abdomen short.

B. Clypeus elevated; ocelli in a triangle; clypeus of the male mostly yellow. Maxillary palpi not flattened; basal joints of the labial palpi broadly wing-margined, the first joint the longest. Pubescence of legs not conspicuously plumose. Stigma obsolete; marginal cell not pointed at apex, not greatly elongated; third submarginal cell not longer than broad and not much narrowed towards the marginal; origin of the first recurrent nervure opposite the origin of the cubital nervure. Pubescence of the wings confined to patches upon the basal or costal portions, and deciduous; limb of the wing coarsely punctured, and traversed by distinct lines free of punctures representing the continuation of the cubital and externo-medial nervures. Basal lobe of the posterior wings not attaining the middle of the submedial cell.

HABROPODA Smith.

Type: *H. ezonata* Smith.

Smith distinguished this genus from *Anthophora* by the following characters: the shorter labium, the proportions of the palpi [but according to his description of the palpi the two genera do not differ], the longer antennæ of the male, the first recurrent nervure uniting with the second transverse cubital nervure, the third submarginal cell narrowed towards the marginal; and by the following characters represented in his figures: the marginal cell longer, and not appendiculate. His figure shows that in regard to the first character he was mistaken, for he had not extended the labium. The second character also should be rejected, as the proportionate length of the joints in the maxillary palpi varies specifically in *Anthophora*, and this cannot be considered a generic character. The species *floridana* and *miserabilis* differ from both *Anthophora* and Smith's description of *Habropoda* in the joints of the maxillary palpi, the third joint being little shorter than the second, the succeeding joints slender and each but a little shorter than the one preceding it, and the apical joint not "minute," but, like the fifth joint, slender and slightly narrowed towards the base. In all the other characters, *Anthophora floridana* Smith agrees with *Habropoda*, and I refer it to that genus: but some of the characters require modification. Some species of *Anthophora* (*simillima* Cress. and *montana* Cress.) have the third submarginal cell very slightly narrowed towards the marginal; in *floridana*, however, the third submarginal is narrowed fully one-third towards the marginal. In *floridana*, the first recurrent nervure is usually received just within the second submarginal cell, but sometimes unites with the transverse nervure; the marginal cell extends as far beyond the third submarginal cell upon the marginal vein as the latter extends beyond the stigma. The antennæ of *floridana* ♂ are nearly as long as the thorax. In *Clisodon terminalis* usually, and in some species of *Anthophora* rarely, the appendiculation of the marginal cell is obsolete.

The following generic characters taken from *floridana* may be added: second submarginal cell quadrate, not pointed at the base. or, when the first recurrent nervure falls short of the tip of the second submarginal cell, very slightly pointed; mandibles very unequally bidentate; labrum with the anterior margin rounded and not thickened nor deflexed, the sides curved downwards continuously with the anterior margin, thus giving to the upper face a subtriangular form; last abdominal segment of the female broad and with a broad triangular enclosure on the disk, last segment of the male with a smooth unenclosed area on the disk. The unpointed tip of the female abdomen gives to this genus a facies distinct from that of *Anthophora*.

In the female of *Anthophora simillima* Cress. ? (but not in the male of *A. simillima*!), the anterior margin of the labrum is rounded out as much as in the male (but not the female) of *floridana*, but the edge is thickened and the upper face is quadrate. The male of *Anthophora abrupta* Say has the labrum of a form peculiarly unlike that of any other species and unlike that of the female; it is transverse and with the anterior border broadly emarginate, the emargination occupied by an obliquely deflexed lobe, which is rounded out anteriorly and is entirely covered with a dense tuft of erect pubescence.

American type: HABROPODA FLORIDANA.

Anthophora floridana Smith, C. H. B. M. ii, 339.

HABROPODA MISERABILIS.

Anthophora miserabilis Cress., Proc. Acad. Nat. Sci. Phila. 1878, p. 191.

To the genus *Habropoda* belong also (to judge from such characters as are given in the specific descriptions) *Pluto* Dours, *aurulentocaudata* Dours, *melanopyrrha* Dours, *mucida* Cress., and *Morrisoni* Cress.

ANTHOPHORA Latr.

Type of Westwood: *A. retusa* (Linn.).

Labrum with a transverse and narrowly deflexed or thickened anterior margin; the sides of the labrum curved downward, the axes of the curves parallel and giving to the upper face a quadrate form. Mandibles simple or bidentate at the apex. Maxillary palpi with the second joint two or three times as long as the basal joint, the following joints much shorter and successively decreasing in length, the sixth joint slender and pointed. Antennæ of the male reaching to the tegulæ. Marginal cell extending beyond the third submarginal no more than the length of the latter, obliquely appendiculate at the apex. Second submarginal cell pentagonal, pointed at the base, the recurrent nervure received near the middle; third submarginal cell not narrowed towards the marginal. Enclosure at the base of the posterior tibiæ in the female large and rounded. Disk of last abdominal segment variable, but not broad as in *Habropoda*.

CLISODON n. g. (*κλείς + ὀδών*).

Type: *Clisodon terminalis.*

Anthophora terminalis Cress., Trans. Am. Ent. Soc. ii, p. 292.

Mandibles in both sexes tridentate, the tip having a tooth beneath as well as above, the central tooth the longest. Area at the base of the posterior tibiæ of the female sharply defined and its tip narrowed and elongate. Otherwise as in *Anthophora*. The disk of the sixth abdominal segment has a narrow smooth area in the female; in the male the apical segment is furcate or terminates in two flattened lobes, and there is no distinct area at the base of the posterior tibiæ. The fifth and sixth joints of the maxillary palpi are equal in length in the male, but in the female the sixth joint is only one-half as long as the fifth. The second transverse submedial nervure forms a continuous curve with the bent portion of the externo-medial nervure.

Anthophora furcata (Panz.) closely resembles *terminalis* and may be related, but the mandibles have been described as bidentate.

Article XXIV.—Annotated List of the Birds of Michigan.

By Dr. Morris Gibbs.

LETTER OF TRANSMITTAL.

KALAMAZOO, MICHIGAN, *October* 1, 1879.

SIR: In compliance with your invitation of June 25, 1879, I have the honor to transmit herewith an "Annotated List of the Birds of Michigan."

This catalogue includes, with few exceptions, those species only which are well established as occurring in this State; among them being many of rare or casual appearance, or never before catalogued as birds of Michigan, the evidence of the capture of which in the State is presented. Although not to be regarded as complete, the list nevertheless gives upward of 300 species, among them being some sixty not heretofore accredited to Michigan.

This State has unfortunately received less attention from ornithologists than the interest which attaches to its peculiar avifauna would seem to invite; there being but few lists, and no systematic work, devoted to the subject. The State Geological Report, 1839, is said to contain a synopsis of Michigan birds by Dr. A. Sager; and a list of 212 species was published in 1853 by Mr. Charles Fox. The State Geological Report for 1860 contains a list of Michigan birds by Dr. M. Miles, giving 203 species and varieties. Mr. A. H. Boies's list, published in 1875, and containing 211 species, only professes to represent the ornithology of the southern part of the lower peninsula. Mr. Adolphe B. Covert's list of 1878, with 244 species, likewise relates only to the birds of the lower peninsula, and omits some species now well ascertained to occur. Mr. W. H. Hughes has also published an annotated list in the "Valley Naturalist" of Saint Louis, Mo., No. 3, 1878, and subsequent issues of that paper.

This catalogue is mainly the result of my own observations, but I am indebted to others, in addition to the above-named sources of information, for many valuable facts; and I take pleasure in acknowledging such obligation to the Hon. D. Darwin Hughes, and C. W. Gunn, esq., of Grand Rapids; to Jerome Trombly, esq., of Petersburg; and to Dr. H. A. Atkins, of Locke.

Special attention is paid in this list to the local distribution of the species within the State, to their migrations, and breeding. The data given in these regards rest upon accurate and reliable observations.

Hoping that this contribution to our knowledge of the avifauna of Michigan may meet with your approval,

I am, Sir, &c.,

MORRIS GIBBS.

Dr. ELLIOTT COUES, U. S. A.,
Secretary U. S. Geological Survey,
Washington, D. C.

TURDIDÆ.

TURDUS MIGRATORIUS. *Robin.*—Very abundant; found in all parts of the State; breeds; winter resident some seasons.

TURDUS MUSTELINUS. *Wood Thrush.*—Very abundant in spring and summer; breeds.

TURDUS PALLASI. *Hermit Thrush.*—Common in some localities; eggs secured May, 1879, in 43° N. Lat.

TURDUS SWAINSONI. *Olive-backed Thrush.*—Abundant summer sojourner; found breeding from 42° to 44° N. Lat.

TURDUS FUSCESCENS. *Wilson's Thrush.*—Common summer resident; breeds.

MIMUS POLYGLOTTUS. *Mocking-bird.*—Accidental visitor.

MIMUS CAROLINENSIS. *Cat-bird.*—Very abundant summer resident; breeds in nearly all parts of the lower peninsula.

HARPORHYNCHUS RUFUS. *Brown Thrush.*—Very common summer resident; breeds in all half-cleared populated localities in the lower peninsula.

SAXICOLIDÆ.

SIALIA SIALIS. *Eastern Bluebird.*—Abundant from March to November; breeds.

SYLVIIDÆ.

REGULUS CALENDULA. *Ruby-crowned Kinglet.*—Abundant in spring and fall.

REGULUS SATRAPA. *Golden-crowned Kinglet.*—Very common during the spring and fall migrations; "summer resident; breeds"—according to Mr. A. H. Boies's "Catalogue of the Birds ascertained to occur in Southern Michigan," 1875.

POLIOPTILA CŒRULEA. *Blue-gray Gnatcatcher.*—Summer resident; breeds plentifully south of 44° N. Lat.

PARIDÆ.

LOPHOPHANES BICOLOR. *Tufted Titmouse.*—Accidental visitor.

PARUS ATRICAPILLUS. *Black-capped Chickadee.*—Very common resident; breeds.

PARUS CAROLINENSIS. Not rare some seasons in the southern part of the State.

SITTIDÆ.

SITTA CAROLINENSIS. *White-bellied Nuthatch.*—Common resident; breeds.

SITTA CANADENSIS. *Red-bellied Nuthatch.*—Common resident; breeds.

CERTHIIDÆ.

CERTHIA FAMILIARIS. *Brown Creeper.*—Resident; breeds.

TROGLODYTIDÆ.

THRYOTHORUS LUDOVICIANUS. *Carolina Wren.*—Rare summer resident.

THRYOTHORUS BEWICKI. *Bewick's Wren.*—Rare; only a few taken in spring.

TROGLODYTES DOMESTICA (Bartr.). *House Wren.*—Abundant summer resident; breeds.

ANORTHURA TROGLODYTES HYEMALIS. *Winter Wren.*—Very common in spring, summer, and fall; occasionally taken in winter; breeds.

TELMATODYTES PALUSTRIS. *Long-billed Marsh Wren.*—Common summer sojourner; breeds.

CISTOTHORUS STELLARIS. *Short-billed Marsh Wren.*—Summer resident; not rare; breeds.

ALAUDIDÆ.

EREMOPHILA ALPESTRIS. *Horned Lark.*—Resident; breeds abundantly.

MOTACILLIDÆ.

ANTHUS LUDOVICIANUS. *Tit Lark.*—Common; transient.

SYLVICOLIDÆ.

MNIOTILTA VARIA. *Black and White Creeper.*—Common summer resident; breeds.

PARULA AMERICANA. *Blue Yellow-backed Warbler.*—Summer resident; common in spring and fall.

PROTONOTARIA CITRÆA. *Prothonotary Warbler.*—Rare straggler.

HELMITHERUS VERMIVORUS. *Worm-eating Warbler.*—"Breeds," according to Mr. A. H. Boies's "Catalogue of the Birds ascertained to occur in Southern Michigan," 1875.

HELMINTHOPHAGA PINÛS. *Blue-winged Yellow Warbler.*—Summer sojourner.

HELMINTHOPHAGA CHRYSOPTERA. *Blue Golden-winged Warbler.*—Common summer resident; breeds.

HELMINTHOPHAGA RUFICAPILLA. *Nashville Warbler.*—Summer sojourner; breeds.

HELMINTHOPHAGA CELATA. *Orange-crowned Warbler.*—Transient; rare.

HELMINTHOPHAGA PEREGRINA. *Tennessee Warbler.*—Transient; common.

HELMINTHOPHAGA LEUCOBRONCHIALIS. *White-throated Warbler.*—One specimen, taken by Mr. W. A. Gunn, May, 1879, in Lat. 43° N. [*]

[*Type of *H. gunnii*, Gibbs, Daily Democrat (newspaper of Grand Rapids, Mich.), of June 1, 1879. (See Purdie, Bull. Nuttall Club, iv, July, 1879, p. 185; and a "Note on the Helminthophaga gunnii Gibbs," by R. Ridgway, tom. cit., pp. 233, 234. Mr. Purdie's identification of the supposed new species was confirmed by Mr. Ridgway's examination of the type-specimen).—E. C.]

DENDRŒCA ÆSTIVA. *Yellow Warbler.*—Summer sojourner; breeds abundantly north to 44° Lat.

DENDRŒCA VIRENS. *Black-throated Green Warbler.*—Abundant summer resident; breeds north of 43° in pine lands.

DENDRŒCA CŒRULESCENS. *Black-throated Blue Warbler.*—Common summer resident; one nest found June, 1878, 43° N., by Mr. C. W. Gunn.

DENDRŒCA CŒRULEA. *Cœrulean Warbler.*—Not rare; breeds south of 42° N.

DENDRŒCA CORONATA. *Yellow-rumped Warbler.*—Exceedingly abundant during the migrations; probably breeds, as it is frequently taken during the summer months.

DENDRŒCA BLACKBURNIÆ. *Blackburnian Warbler.*—Very common; a few remain during summer; breeds north of 43°.

DENDRŒCA STRIATA. *Black-poll Warbler.*—Common migrant.

DENDRŒCA CASTANEA.—*Bay-breasted Warbler.*—Transient; common in fall.

DENDRŒCA PENNSYLVANICA. *Chestnut-sided Warbler.*—Exceedingly abundant summer resident; breeds plentifully north to 43°.

DENDRŒCA MACULOSA. *Black and Yellow Warbler.*—Very abundant migrant; occasionally taken in summer.

DENDRŒCA DISCOLOR. *Prairie Warbler.*—Common migrant; secured one set of eggs May, 1879, in Lat. 43° N.

DENDRŒCA DOMINICA ALBILORA. *White-browed Warbler.*—Not rare; breeds south of Lat. 42°.

DENDRŒCA KIRTLANDI. *Kirtland's Warbler.*—Rare straggler.

DENDRŒCA PALMARUM. *Yellow Red-poll Warbler.*—Common migrant.

DENDRŒCA PINÛS. *Pine Warbler.*—Abundant summer sojourner; breeds north to 43°.

PERISSOGLOSSA TIGRINA. *Cape May Warbler.*—Transient; common some seasons.

SIURUS AURICAPILLUS. *Golden-crowned Thrush.*—Common summer resident; breeds.

SIURUS NÆVIUS. *Water Thrush.*—Not a rare summer sojourner; breeds.

SIURUS MOTACILLA. *Large-billed Water Thrush.*—Exceedingly abundant south of Lat. 43°; breeds.

OPORORNIS AGILIS. *Connecticut Warbler.*—Several specimens taken in May, 1879.

OPORORNIS FORMOSUS. *Kentucky Warbler.*—Rare; one taken in the spring of 1872.

GEOTHLYPIS TRICHAS. *Maryland Yellow-throat.*—Very abundant from May to September; breeds plentifully south of Lat. 43°.

GEOTHLYPIS PHILADELPHIA. *Mourning Warbler.*—Quite a common summer sojourner in certain localities; breeds in Lat. 43°; edge of pinery.

ICTERIA VIRENS. *Long-tailed Chat.*—Rare accidental visitor; found breeding twice by Mr. Jerome Trombley in 42° Lat.

MYIODIOCTES MITRATUS. *Hooded Flycatcher.*—One of our most common Warblers; breeds plentifully south of 43° Lat.

MYIODIOCTES PUSILLUS. *Green Black-capped Flycatcher.*—Common migrant.

MYIODIOCTES CANADENSIS. *Canadian Flycatcher.*—Abundant summer resident; breeds.

SETOPHAGA RUTICILLA. *Redstart.* — Exceedingly abundant from April to September; breeds plentifully.

TANAGRIDÆ.

PYRANGA RUBRA. *Scarlet Tanager.*—Very common summer resident; breeds.

PYRANGA ÆSTIVA. *Summer Red-bird.*—Rare accidental visitor; taken once in Lat. 43°.

HIRUNDINIDÆ.

HIRUNDO HORREORUM. *Barn Swallow.*—Abundant summer resident; breeds.

IRIDOPROCNE BICOLOR. *White-bellied Swallow.*—Abundant from March to September; breeds in both peninsulas.

PETROCHELIDON LUNIFRONS. *Cliff Swallow.*—Common summer sojourner; breeds.

COTYLE RIPARIA. *Bank Swallow.*—Abundant summer resident; breeds in nearly all parts of the State.

STELGIDOPTERYX SERRIPENNIS. *Rough-winged Swallow.*—Common summer sojourner; breeds.

PROGNE PURPUREA. *Purple Martin.*—Abundant from April to September; breeds in populated districts.

AMPELIDÆ.

AMPELIS GARRULUS. *Bohemian Waxwing.*—Irregular winter visitant.

AMPELIS CEDRORUM. *Cedar Bird.*—Abundant resident; breeds.

VIREONIDÆ.

VIREO OLIVACEUS. *Red-eyed Vireo.*—Very common summer resident; breeds.

VIREO PHILADELPHICUS. *Brotherly-love Vireo.*—Rare migrant.

VIREO GILVUS. *Warbling Vireo.*—Common summer sojourner; breeds.

VIREO FLAVIFRONS. *Yellow-throated Vireo.*—Abundant summer resident; breeds.

VIREO SOLITARIUS. *Blue-headed Vireo.*—Common; transient.

VIREO NOVEBORACENSIS. *White-eyed Vireo.*—Scarce summer sojourner; breeds.

LANIIDÆ.

LANIUS BOREALIS. *Great Northern Shrike.*—Winter resident; has been found breeding.

LANIUS LUDOVICIANUS. *Loggerhead Shrike.*—Typical species. Rare; breeds.

LANIUS LUDOVICIANUS EXCUBITORIDES. *White-rumped Shrike.*—Abundant from March to October; breeds.

FRINGILLIDÆ.

HESPERIPHONA VESPERTINA. *Evening Grosbeak.*—Common winter resident some years; remained in Kalamazoo County, in Lat. 42° 20′ N., from November 20, 1878, to May 6, 1879.

PINICOLA ENUCLEATOR. *Pine Grosbeak.*—Irregular winter visitant.

CARPODACUS PURPUREUS. *Purple Finch.* — Abundant; probably breeds; occasionally taken in winter.

CURVIROSTRA LEUCOPTERA. *White-winged Cross-bill.* — Common some winters; irregular migrant.

CURVIROSTRA AMERICANA. *Red or Common Cross-bill.*—Migrant; very common some seasons; breeds.

ÆGIOTHUS LINARIA. *Lesser Red-poll.*—Irregular winter visitant; common some seasons; sometimes remains till May.

ÆGIOTHUS LINARIA HOLBÖLLI. One specimen taken March, 1878, in Lat. 42° 20′, determined by Mr. Ridgway to be this form.

ÆGIOTHUS EXILIPES. *American Mealy Red-poll.*—Rare winter visitant.

CHRYSOMITRIS PINUS. *Pine Linnet.*—Irregular winter visitant.

CHRYSOMITRIS TRISTIS. *Yellow Bird.*—Abundant resident.

PLECTROPHANES NIVALIS. *Snow Bunting.*—Irregular winter visitant.

PLECTROPHANES LAPPONICUS. *Lapland Long-spur.*—Generally a transient visitor from the north; occasionally spends the winter south of 43°.

PASSERCULUS SAVANNA. *Savannah Sparrow.*—Migratory generally; some breed south of 43°, according to A. H. Boies.

POŒCETES GRAMINEUS. *Bay-winged Bunting.*—Common summer sojourner; breeds.

COTURNICULUS PASSERINUS. *Yellow-winged Sparrow.*—Summer resident; breeds.

AMMODROMUS CAUDACUTUS NELSONI. *Sharp-tailed Finch.*—Rare; only two specimens observed, both taken by Mr. William Ely, October, 1878, in Lat. 42° 20′ N.

MELOSPIZA LINCOLNI. *Lincoln's Finch.*—Rather scarce; secured two specimens, May, 1875, in Lat. 42° 20′ N.

MELOSPIZA PALUSTRIS. *Swamp Sparrow.*—Rather common summer resident.

MELOSPIZA MELODA. *Song Sparrow.*—Two varieties; very abundant from March to November; breeds.

JUNCO HYEMALIS. *Black Snowbird.*—Winter resident south of 43°; summer resident in various parts of State; breeds plentifully in northern part of lower peninsula.

JUNCO OREGONUS. *Oregon Snowbird.*—Accidental visitor; rare.

SPIZELLA MONTICOLA. *Tree Sparrow.*—Winter resident; abundant.

SPIZELLA SOCIALIS. *Chipping Sparrow.*—Abundant from April to October; breeds.

SPIZELLA PUSILLA. *Field Sparrow.*—Exceedingly common from April to October; breeds plentifully south of 43° N. Lat.

ZONOTRICHIA ALBICOLLIS. *White-throated Sparrow.*—Abundant migrant.

ZONOTRICHIA LEUCOPHRYS. *White-crowned Sparrow.*—Transient; common spring and autumn.

CHONDESTES GRAMMICA. *Lark Finch.*—Common summer sojourner in some localities; probably breeds, as it has been taken repeatedly during the breeding season in Van Buren County.

PASSER DOMESTICUS. *English Sparrow.*—Very abundant in many of our principal cities and villages; resident; breeds.

PASSERELLA ILIACA. *Fox Sparrow.*—Migrant; common spring and autumn.

EUSPIZA AMERICANA. *Black-throated Bunting.*—Very abundant summer resident; breeds plentifully south of 43° N. Lat.

GONIAPHEA LUDOVICIANA. *Rose-breasted Grosbeak.*—Very abundant summer sojourner; breeds.

GONIAPHEA MELANOCEPHALA. *Black-headed Grosbeak.* Very rare.

CYANOSPIZA CYANEA. *Indigo-bird.*—Exceedingly abundant summer resident; breeds plentifully north to 43°.

CARDINALIS VIRGINIANUS. *Cardinal Red-bird.*—A few specimens taken in southern part of State; accidental visitor.

PIPILO ERYTHROPHTHALMUS. *Towhee Bunting.*—Abundant summer sojourner; breeds; taken from February to November; one set of four fresh eggs secured August 10, 1879.

ICTERIDÆ.

DOLICHONYX ORYZIVORUS. *Bobolink.*—Very common summer resident; breeds.

MOLOTHRUS ATER. *Cowbird.*—Abundant from March to September; breeds.

AGELÆUS PHŒNICEUS. *Red-winged Blackbird.*—Exceedingly abundant during spring, summer, and autumn; breeds.

XANTHOCEPHALUS ICTEROCEPHALUS. *Yellow-headed Blackbird.*—Occasionally taken in southwestern portion of the State; probably breeds, as a great number do in Northwestern Indiana.

STURNELLA MAGNA. *Field Lark.*—Abundant summer resident; occasionally remains the entire season; breeds plentifully in nearly all parts of lower peninsula, in meadows.

STURNELLA MAGNA NEGLECTA.—Not a rare visitor in Lat. 43° N.

ICTERUS SPURIUS. *Orchard Oriole.*—Common summer sojourner; breeds plentifully south of Lat. 43° N.

ICTERUS BALTIMORE. *Baltimore Oriole.*—Resident in nearly all parts of lower peninsula from May to August; breeds plentifully.

SCOLECOPHAGUS FERRUGINEUS. *Rusty Grackle.*—Transient; very common during spring and autumn; probably breeds.

QUISCALUS PURPUREUS ÆNEUS. *Purple Grackle.*—Abundant summer sojourner; breeds in large numbers.

CORVIDÆ.

CORVUS CORAX. *Raven.*—Quite common previous to 1868; one taken in 1873; has nearly disappeared since the advent of the crows.

CORVUS FRUGIVORUS (Bartr.). *Crow.*—Exceedingly common; breeds; resident in some southern sections. Scarcely ever seen ten years ago.

CYANURUS CRISTATUS. *Blue Jay.*—Abundant resident in all parts of the State; breeds from April to July.

PERISOREUS CANADENSIS. *Canada Jay.*—Found in both peninsulas; occasional winter visitant to southern boundary of State; found breeding.

TYRANNIDÆ.

TYRANNUS CAROLINENSIS. *King-bird.*—Abundant summer sojourner; breeds plentifully in nearly the whole lower peninsula.

MYIARCHUS CRINITUS. *Great-crested Flycatcher.*—A generally distributed species; abundant in spring and summer; breeds.

SAYORNIS SAYUS. *Say's Flycatcher.*—Named here on the authority of a single specimen captured at Grosse Isle, as given by Fox, in 1853.

SAYORNIS FUSCUS. *Pewee.*—Common summer resident; breeds.

CONTOPUS BOREALIS. *Olive-sided Flycatcher.*—Not common, but taken in all parts of the State; probably breeds, as numbers were seen in August in Lat. 45° 20′.

CONTOPUS VIRENS. *Wood Pewee.*—An abundant and generally distributed summer resident; breeds plentifully.

EMPIDONAX ACADICUS. *Small Green-crested Flycatcher.*—Very abundant in spring and summer; breeds south of Lat. 43° N. abundantly.

EMPIDONAX TRAILLI. *Traill's Flycatcher.*—Common summer resident in some portions of lower peninsula; breeds.

EMPIDONAX MINIMUS. *Least Flycatcher.*—Abundant from May to September; breeds.

EMPIDONAX FLAVIVENTRIS. *Yellow-bellied Flycatcher.* — Taken throughout the lower peninsula; probably breeds; quite rare in some localities; summer resident in Lat. 45° 20′ N.

CAPRIMULGIDÆ.

Antrostomus vociferus. *Whippoorwill.*—Exceedingly abundant summer resident; breeds plentifully south of Lat. 44°.

Chordiles virginianus. *Night-hawk.*—Very common from May to September; breeds plentifully in lower peninsula.

CYPSELIDÆ.

Chætura pelagica. *Chimney Swift.*—Very abundant summer resident; breeds.

TROCHILIDÆ.

Trochilus colubris. *Ruby-throated Humming-bird.*—Abundant from May 10 to September 20; breeds.

ALCEDINIDÆ.

Ceryle alcyon. *Belted Kingfisher.*—Very abundant summer sojourner; breeds.

CUCULIDÆ.

Coccygus erythrophthalmus. *Black-billed Cuckoo.*—Common summer resident; breeds.

Coccygus americanus. *Yellow-billed Cuckoo.*—Not a common summer resident; breeds.

PICIDÆ.

Hylotomus pileatus. *Pileated, or Black Woodpecker.*—Once common throughout the State; only found now in deep woods; breeds ?

Picus villosus. *Hairy Woodpecker.*—Common resident; breeds.

Picus pubescens. *Downy Woodpecker.*—Common resident; breeds.

Picoïdes arcticus. *Black-backed Woodpecker.*—A specimen secured by Mr. Jas. H. Dewing, Lat. 44° N.; rare.

Picoïdes americanus. *Banded Woodpecker.*—Entered in this list on the authority of A. B. Covert.

Sphyrapicus varius. *Yellow-bellied Woodpecker.*—Very abundant in spring migration; some remain during summer. A. H. Boies gives this species as a resident (Catalogue of the Birds ascertained to occur in Southern Michigan, 1875).

Centurus carolinus. *Red-bellied Woodpecker.*—Abundant resident; breeds.

Melanerpes erythrocephalus. *Red-headed Woodpecker.*—Common summer resident; breeds; irregular winter resident.

Colaptes auratus. *Golden-winged Woodpecker.*—Common resident in nearly all parts of lower peninsula; breeds plentifully.

STRIGIDÆ.

STRIX FLAMMEA AMERICANA. *Barn Owl.*—Rather rare resident.

BUBO VIRGINIANUS. *Great Horned Owl.*—Common resident; breeds; two varieties taken.

SCOPS ASIO. *Screech Owl.*—Common resident; breeds.

OTUS VULGARIS WILSONIANUS. *Long-eared Owl.*—Common resident; breeds.

BRACHYOTUS PALUSTRIS. *Short-eared Owl.*—Resident; breeds.

SYRNIUM CINEREUM. *Great Gray Owl.*—Rather rare resident; probably breeds.

SYRNIUM NEBULOSUM. *Barred Owl.*—Very common resident; breeds.

NYCTEA NIVEA. *Snowy Owl.*—Rather common winter resident, south to the southern boundary of the State; probably breeds.

SURNIA ULULA HUDSONICA. Rare winter visitor.

NYCTALE ACADICA. *Acadian Owl.*—Rather common in some localities; breeds.

FALCONIDÆ.

CIRCUS CYANEUS HUDSONIUS. *Marsh Harrier.*—Abundant summer resident; breeds.

ICTINIA SUBCŒRULEA (Bartr.). *Mississippi Kite.*—Recorded on the authority of a single specimen taken in Cass County; preserved.

ELANUS GLAUCUS (Bartr.). *Black-shouldered Kite.*—A rare summer resident, according to Dr. H. A. Atkins.

ELANOÏDES FORFICATUS. *Swallow-tailed Kite.*—Placed in the list of Michigan birds by Hon. D. D. Hughes, Ornithology of Michigan, MSS.

ACCIPITER FUSCUS. *Sharp-shinned Hawk.*—Common summer resident; breeds.

ACCIPITER COOPERI. *Cooper's Hawk.*—Very abundant summer resident; breeds.

ASTUR ATRICAPILLUS. *Goshawk.*—Irregular visitant; more frequently taken in winter; more common in northern part of the State, where it probably breeds.

FALCO SACER. *Jerfalcon.*—Said to have been taken in the State in winter.

FALCO COMMUNIS. *Duck Hawk.*—Irregular visitor; several taken.

FALCO COLUMBARIUS. *Pigeon Hawk.*—Not a common species; breeds.

FALCO SPARVERIUS. *Sparrow Hawk.*—Abundant summer resident; a generally distributed species; breeds.

BUTEO BOREALIS. *Red-tailed Buzzard.*—Very common from March to November; resident some seasons; breeds plentifully.

BUTEO LINEATUS. *Red-shouldered Buzzard.*—Common summer sojourner; breeds; resident in some localities.

BUTEO SWAINSONI. *Swainson's Buzzard.*—Placed in this list on the authority of a specimen taken in Genesee County, Lat. 43°, now in the Flint Scientific Institute.

BUTEO PENNSYLVANICUS. *Broad-winged Buzzard.*—Rather rare; breeds; I secured two eggs from a nest in May, 1875.

ARCHIBUTEO LAGOPUS SANCTI-JOHANNIS.—Probably a resident; more common in winter; breeds in Ingham County, according to Dr. Atkins.

PANDION HALIAËTUS. *Osprey.*—Summer resident; breeds.

AQUILA CHRYSAËTUS. *Golden Eagle.*—Two authentic captures.

HALIAËTUS LEUCOCEPHALUS. *Bald Eagle.*—Not rare; breeds in Wexford County, Lat. 40° N., according to Mr. James H. Dewing.

CATHARTIDÆ.

CATHARTES AURA. *Turkey Buzzard.*—Once common; now quite rare-

COLUMBIDÆ.

ECTOPISTES MACRURUS (Linn., 1758). *Wild Pigeon.*—Exceedingly common some seasons; irregular migrant; occasionally taken in winter; breeds sparingly in all parts of the State; breeds in the northern part of the lower peninsula from 44° to 45° 30′ in immense numbers each season.

ZENÆDURA CAROLINENSIS. *Mourning Dove.*—Exceedingly abundant in spring, summer, and autumn; breeds plentifully; occasionally remains during the winter months.

MELEAGRIDÆ.

MELEAGRIS GALLOPAVO. *Turkey.*—Once a common resident in all parts of the State; still common in some localities; breeds.

TETRAONIDÆ.

TETRAO CANADENSIS. *Canada Grouse.*—Common near Mackinaw, according to Hon. D. D. Hughes.

CUPIDONIA CUPIDO. *Prairie Hen.*—Common resident; breeds.

BONASA UMBELLUS. *Ruffled Grouse.*—Very common resident; breeds. Specimens differ in the character of the tail-bands.

LAGOPUS ALBUS. *Willow Ptarmigan.*—Taken in upper peninsula, according to H. R. Schoolcraft, in 1834, near Saint Mary's Straits; historical sketches before Lyceum of New York City.

ORTYX VIRGINIANA. *Quail.*—Common resident; breeds.

CHARADRIDÆ.

SQUATAROLA HELVETICA. *Black-bellied Plover.*—Migrant; not common.

CHARADRIUS FULVUS VIRGINICUS.—Very abundant migrant.

ÆGIALITIS VOCIFERA. *Killdeer Plover.*—Common from March to November; breeds.

ÆGIALITIS SEMIPALMATA. *Ring-neck.*—Abundant migrant; summer sojourner in Lat. 45° N.

ÆGIALITIS MELODA. *Piping Plover.*—Quite common in some portions of the State; migrant.

HÆMATOPODIDÆ.

STREPSILAS INTERPRES. *Turnstone.*—Migrant; not rare.

RECURVIROSTRIDÆ.

HIMANTOPUS NIGRICOLLIS. *Stilt.*—Rare; transient.

PHALAROPIDÆ.

STEGANOPUS WILSONI. *Wilson's Phalarope.*—Common during spring migrations; a few remain during summer; breeds.

LOBIPES HYPERBOREUS. *Northern Phalarope.*—Rare visitor.

SCOLOPACIDÆ.

PHILOHELA MINOR. *American Woodcock.*—Common from March to November; a generally distributed species; breeds.

GALLINAGO WILSONI. *American Snipe.*—Common during spring and autumn; a few remain during summer; found breeding in Saint Joseph County, 42°, by Mr. Eugene Beerstecher.

MACRORHAMPHUS GRISEUS. *Red-breasted Snipe.*—Migrant; not rare in spring.

MICROPALMA HIMANTOPUS. *Stilt Sandpiper.*—Not rare some seasons near large bodies of water.

EREUNETES PUSILLUS. *Semipalmated Sandpiper.*—Common migrant.

TRINGA MINUTILLA. *Least Sandpiper.*—Very common in spring and autumn; some remain during summer; breeds.

TRINGA MACULATA. *Grass Snipe.*—Very common migrant.

TRINGA BONAPARTII. *White-rumped Sandpiper.*—Not common; summer sojourner in 45° 20′ N.

TRINGA ALPINA AMERICANA. *Red-backed Sandpiper.*—Migrant; not common; a few taken in spring.

TRINGA SUBARQUATA. *Curlew Sandpiper.*—Rare visitor; one taken in 1870, according to Hon. D. D. Hughes, Ornithology of Michigan, MSS.

TRINGA CANUTUS. *Red-breasted Sandpiper.*—Rare migrant.

CALIDRIS ARENARIA. *Sanderling.*—Common on the shores of the great lakes; migrant.

LIMOSA FEDOA. *Great Marbled Godwit.*—Taken occasionally near Detroit and along the edges of the great lakes; migrant.

LIMOSA HÆMASTICA. *Hudsonian Godwit.*—Two specimens secured.

TOTANUS SEMIPALMATUS. *Willet.*—Rare migrant; two specimens in the collection of C. W. Gunn, Grand Rapids.

TOTANUS MELANOLEUCUS. *Greater Yellow-shanks.* — Common migrant.

TOTANUS FLAVIPES. *Lesser Yellow-shanks.*—Abundant migrant.

TOTANUS SOLITARIUS. *Solitary Tattler.*—Common; breeds; taken from 42° to 45° 20′ N. Lat.; never gregarious.

TRINGOIDES MACULARIUS. *Spotted Sandpiper.*—Very abundant from April to October; breeds plentifully south of 43°.

ACTITURUS BARTRAMIUS. *Field Plover.*—Very common summer resident; breeds.

TRYNGITES RUFESCENS. *Buff-breasted Sandpiper.*—Rare migrant; shot two September 17, 1875.

NUMENIUS LONGIROSTRIS. *Long-billed Curlew.*—Not a rare migrant.

NUMENIUS HUDSONICUS. *Hudsonian Curlew.*—Rare; only two taken to my knowledge.

NUMENIUS BOREALIS. *Esquimaux Curlew.*—One specimen, taken by Benjamin Syke, Nov., 1879.

ARDEIDÆ.

ARDEA HERODIAS. *Great Blue Heron.*—A generally distributed and common summer resident; breeds in large colonies.

HERODIAS EGRETTA. *White Heron.*—Occasionally taken south of Lat. 43°; rare summer visitor.

GARZETTA CANDIDISSIMA. *Snowy Heron.*—Summer sojourner; probably breeds.

FLORIDA CŒRULEA. *Little Blue Heron.*—Rare accidental visitor.

BUTORIDES VIRESCENS. *Green Heron.*—Common in spring and summer; breeds.

NYCTIARDEA GRISEA NÆVIA.—Common summer resident in some localities; breeds.

NYCTHERODIUS VIOLACEUS. *Yellow-crowned Night Heron.*—Rare straggler.

BOTAURUS LENTIGINOSUS. *Stake-driver.*—Common resident; breeds.

ARDETTA EXILIS. *Least Bittern.*—Common summer sojourner; breeds.

GRUIDÆ.

GRUS AMERICANA. *White or Whooping Crane.*—Accidental visitor.

GRUS CANADENSIS. *Sandhill Crane.*—"Common summer resident" in Monroe County, Lat. 42°, according to Mr. Jerome Trombley; has been found breeding.

RALLIDÆ.

RALLUS CREPITANS. *Clapper Rail.*—Rare, accidental visitor.

RALLUS ELEGANS. *King Rail.*—Not a rare summer sojourner; said to breed.

RALLUS VIRGINIANUS. *Virginia Rail.*—Very common; a well-distributed species; breeds plentifully south of 43°.

PORZANA CAROLINA. *Carolina Rail.*—Very common from May to September; breeds.

PORZANA NOVEBORACENSIS. *Yellow Rail.*—Rather rare; occasionally taken in spring; probably breeds.

GALLINULA GALEATA. *Florida Gallinule.*—Common summer resident; breeds.

FULICA AMERICANA. *Coot.*—Common summer sojourner; breeds.

ANATIDÆ.

CYGNUS BUCCINATOR. *Trumpeter Swan.*—Entered, as a transient visitor, on the authority of Mr. A. H. Boies's "Catalogue of the Birds ascertained to occur in Southern Michigan."

CYGNUS AMERICANUS. *Whistling Swan.*—Not rare during the migrations; one remained during the summer in the vicinity of Long Lake, in Lat. 42° 20′.

ANSER ALBIFRONS GAMBELI. *American White-fronted Goose.*—Transient; rare.

ANSER HYPERBOREUS. *Snow Goose.*—Common migrant.

BRANTA BERNICLA. *Brant Goose.*—Common migrant.

BRANTA CANADENSIS. *Canada Goose.*—Common in spring and autumn; breeds.

ANAS BOSCHAS. *Mallard.*—Exceedingly abundant summer resident; breeds.

ANAS OBSCURA. *Black Duck.*—Common in migration; a few are said to remain during the breeding season.

DAFILA ACUTA. *Pintail.*—Migrant; not rare.

CHAULELASMUS STREPERUS. *Gadwall.*—Rare spring and autumn visitor.

MARECA AMERICANA. *American Widgeon.*—Common migrant.

NETTION CAROLINENSIS. *Green-winged Teal.*—Common spring and fall; a few breed.

QUERQUEDULA DISCORS. *Blue-winged Teal.*—Common migrant.

SPATULA CLYPEATA. *Shoveller.*—Not a rare migrant.

AIX SPONSA. *Wood Duck.*—Very common summer resident; breeds plentifully in certain localities.

FULIGULA MARILA. *Big Black-head.*—Common migrant.

FULIGULA AFFINIS. *Little Black-head.*—Transient; our most common duck.

FULIGULA COLLARIS. *Ring-necked Duck.*—Not a rare transient.

FULIGULA FERINA AMERICANA. *Red-head.*—Not rare spring and fall.

FULIGULA VALLISNERIA. *Canvas-back.*—Migrant; common on the great lakes.

BUCEPHALA CLANGULA. *Golden Eye.*—Common; transient.

BUCEPHALA ALBEOLA. *Buffle-head.*—Exceedingly abundant spring and fall; probably breeds.

HARELDA GLACIALIS. *Long-tailed Duck.*—Rather rare; transient.

CAMPTOLÆMUS LABRADORIUS. *Labrador, or Pied Duck.*—One specimen taken at Delhi, Mich., April, 1872. (See "Forest and Stream," vi, May 4, 1876, p. 197.)

SOMATERIA MOLLISSIMA (var.?). *Eider Duck.*—Occasionally seen on Lake Superior.

ŒDEMIA AMERICANA. *American Black Scoter.*—Rare accidental visitor.

ŒDEMIA FUSCA. *Velvet Scoter.*—Migrant; one taken.

HISTRIONICUS TORQUATUS. *Harlequin Duck.*—Given as a "winter visitant to Lake Michigan," on the authority of Dr. Velie, in Ridgway's "Catalogue of the Birds ascertained to occur in Illinois."

ERISMATURA RUBIDA. *Ruddy Duck.*—Exceedingly common during spring and fall.

MERGUS MERGANSER. *Goosander.*—Common during the migrations; some pass the summer in the northern part of the lower peninsula, according to C. W. Gunn.

MERGUS SERRATOR. *Red-breasted Merganser.*—Rather rare; transient.

MERGUS CUCULLATUS. *Hooded Merganser.*—Abundant migrant.

SULIDÆ.

SULA BASSANA. *Common Gannet.*—Occasionally taken on the great lakes.

PELECANIDÆ.

PELECANUS TRACHYRHYNCHUS. *American White Pelican.*—Two specimens shot in St. Joseph County, and now in the collection of Mr. Adolph Beerstecher.

GRACULIDÆ.

? GRACULUS CARBO. *Common Cormorant.*—An occasional visitor.

GRACULUS DILOPHUS. *Double-crested Cormorant.*—Migrant; common at times.

LARIDÆ.

LARUS GLAUCUS. *Ice Gull.*—Occasionally taken.

LARUS ARGENTATUS. *Herring Gull.*—Very common migrant; probably breeds in northern peninsula.

LARUS MARINUS. *Black-backed Gull.*—"Winter visitant on Lake Michigan" (Dr. Velie), Ridgway's List of Birds of Illinois, 1874.

LARUS DELAWARENSIS. *Ring-billed Gull.*—Common migrant.

LARUS TRIDACTYLUS. *Kittiwake Gull.*—Rare accidental visitor.

LARUS ATRICILLA. *Laughing Gull.*—Very abundant on the great lakes; probably breeds in the northern peninsula.

LARUS FRANKLINI. *Franklin's Rosy Gull.*—Not rare on Lake Michigan during winter and spring.

LARUS PHILADELPHIA. *Bonaparte's Gull.*—Rather common during spring; some remain during the summer months.

STERNA CASPIA. *Caspian Tern.*—Rare accidental visitor; occasionally taken on Lake Michigan in winter.

STERNA REGIA. *Royal Tern.*—Rare summer visitant; occasionally taken on Lake Michigan during late spring.

STERNA ANGLICA. *Marsh Tern.*—Not a rare summer visitant to the great lakes; common on shores of Lake Michigan some seasons.

STERNA HIRUNDO. *Wilson's Tern.*—Common migrant; probably breeds.

STERNA FORSTERI. *Forster's Tern.*—Summer sojourner.

STERNA MACRURA. *Arctic Tern.*—Not a common migrant.

STERNA PARADISÆA. *Roseate Tern.*—Occasional visitor.

STERNA SUPERCILIARIS ANTILLARUM. *Least Tern.*—"A common migrant" according to one authority; rather to be doubted.

HYDROCHELIDON LARIFORMIS. *Black or Short-tailed Tern.*—Very common in spring and summer; breeds.

COLYMBIDÆ.

COLYMBUS TORQUATUS. *Loon.*—Exceedingly common spring, summer, and autumn; breeds plentifully; some remain during winter in mild seasons.

COLYMBUS ARCTICUS. *Black-throated Diver.*—Occasionally taken on Lake Michigan in early winter.

COLYMBUS SEPTENTRIONALIS. *Red-throated Diver.*—Very abundant on our rivers during some winters; migrates north in April.

PODICIPIDÆ.

PODICEPS GRISEIGENA HOLBÖLLI. *Red-necked Grebe.*—Very rare; transient.

PODICEPS CORNUTUS. *Horned Grebe.*—Migrant; common in fall.

PODILYMBUS PODICEPS. *Carolina Grebe.*—Common summer resident; breeds.

ALCIDÆ.

UTAMANIA TORDA. *Razor-billed Auk.*—Irregular visitor to northern peninsula.

FRATERCULA ARCTICA. *Common Puffin.*—Rare straggler.

URIA GRYLLE. *Black Guillemot.*—Not rare in northern peninsula occasional seasons.

LOMVIA TROILE. *Murre.*—Occasionally taken on Lake Superior.

List of Species liable to occur in Michigan.

1. *Vireo belli.* Bell's Vireo. Common in Illinois.
2. *Plectrophanes pictus.* Painted Bunting. Taken in Illinois.
3. *Plectrophanes maccowni.* Maccown's Bunting. Taken in Illinois.
4. *Ammodromus henslowi.* Henslow's Bunting. Summer sojourner in Illinois.
5. *Spizella pallida.* Clay-colored Sparrow. Summer sojourner in Illinois.
6. *Pediœcetes phasianellus.* Sharp-tailed Grouse. Taken in Northern Illinois.

7. *Ægialitis wilsonia.* Wilson's Plover. Taken in Ohio.

8. *Phalaropus fulicarius.* Red-bellied Phalarope. Taken in Northern Illinois.

9. *Tringa bairdi.* Baird's Sandpiper. Transient in Illinois.

10. *Tringa maritima.* Purple Sandpiper. Common on shores of Lake Michigan in Illinois.

11. *Recurvirostra americana.* Avocet. Taken in Illinois and New York.

12. *Numenius borealis.* Esquimaux Curlew. Transient in Illinois.

13. *Anser cœrulescens.* White-headed Goose. Transient in Illinois.

14. *Podiceps auritus.* Eared Grebe. Taken in winter in Illinois.

Art. XXV.—The Coleoptera of the Alpine Rocky Mountain Regions.—Part II.*

By John L. LeConte, M. D.

I.—INTRODUCTORY REMARKS.

The following important contribution to our knowledge of the Coleoptera of the high mountains of Colorado is based upon a collection made by Mr. E. A. Schwarz during a short visit to Garland, La Veta, and Veta Pass, Col., and Alamosa, on the Rio Grande, during the months of June and July, 1878.

Though the time of exploration was very short, the well-known skill and industry of Mr. Schwarz have enabled him to greatly increase the materials at our disposal for the investigation of the distribution of Coleoptera in the interior of the continent.

It is needless for me on the present occasion to analyze the contents of the list here given as I have done in my first memoir (Bull. IV, 447), since I have there exposed fully my views concerning the manner in which such an investigation should be made, and the kind of inferences which may be legitimately drawn from it, when it is based upon sufficient large collections.

I postpone this labor the more cheerfully, because the growing sense of the importance of the results to be derived from the careful collection of the smaller, and probably more permanent forms of animals, with reference to their habits and geographical distribution, convinces me that a more enlightened policy may perhaps soon be adopted, in the great geographical and geological surveys under the direction of government officials, by which investigators may be furnished with properly collected materials from regions which it is not in the power of citizens unprotected by a strong guard to visit; or which are so distant and inaccessible that they cannot be visited by persons of ordinary resources, however zealous in scientific labor.

It is proper, however, that I should here mention the most important additions to our fauna which are made known in this memoir. They are—

Bembidium rubiginosum, n. sp., a brown species, of quite different type from any heretofore found in North America.

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* Part I. appeared in this Bulletin, Vol. IV, No. 2, Art. XX, pp. 447–480, May, 1878.—Ed.

Three species (?) of *Gyrophæna*, probably of the group *Encephalus*, not before known on this continent.

Deliphrum expansum, n. sp. Very similar to the European *D. tectum.*

Siagonium punctatum, known before only in Eastern America.

Pseudopsis obliterata, n. sp., remarkable by the indistinct elevated ridges.

Hydnobius, four species, apparently parallel with the European forms.

Euthia; with table of four species from Western America. The genus is not, however, unrepresented in the Eastern region.

Emphylus americanus, n. sp. Genus not before represented.

Hypocoprus formicetorum. Apparently not different from the European species.

Gastrallus marginipennis, n. sp. Genus not before represented.

Phymatodes maculicollis. Known only from Lake Superior.

Callimus chalybæus. Extends from California.

Eleodes; five species extend to a great altitude.

Lacconotus pinicola Horn. The second species of this singular genus.

Scolytidæ. A comparatively large number (19) of species.

I have intercalated a few species from Idaho and Wyoming, which I owe to the kindness of Mr. O. Reinecke, of Buffalo.

The following abbreviations are used in the list: V. P.; Veta Pass. L. V.; La Veta. G.; Garland. A.; Alamosa. The altitude of La Veta is 7,000, that of Garland 8,000, and that of Alamosa about 7,600 feet above the level of the sea. The higher altitudes of Veta Pass are given in the list.

The outline figures of the four species of *Euthia* described on p. 513, were kindly drawn for me by Dr. G. H. Horn, and exhibit the specific differences in a very characteristic manner.

II.—LIST OF COLEOPTERA COLLECTED BY MR. E. A. SCHWARZ, IN THE ROCKY MOUNTAINS, AT AN ELEVATION OF 6,000 FEET AND UPWARD.

Cicindela purpurea. V. P., 9,400.
Cicindela Willistoni, n. sp. 507. Como, Wy.
Omophron americanum. L. V.
Elaphrus riparius. G., A.
Trachypachys inermis. V. P., 9,300.
Notiophilus Hardyi. V. P., 9,400–10,000.
Notiophilus sibiricus. V. P., 9,000–9,500.
Nebria obliqua. G., L. V.
Nebria obtusa.
Nebria purpurata. Atlanta, Idaho.
Dyschirius truncatus. G.
Dyschirius æneolus. G., A.
Dyschirius montanus, n. sp. 507. G., A.
Schizogenius Sallei? L. V.
Apristus subsulcatus. L. V.
Blechrus linearis. G.
Metabletus americanus. G., V. P., 9,400.
Axinopalpus californicus. G.
Cymindis laticollis. V. P., 9,300.
Calathus ingratus. V. P., 9,400–10,000.
Calathus mollis. V. P., 9,200.
Platynus cupripennis. A.
Platynus sordens (fuscescens Chd.). G.
Pasimachus elongatus. L. V.
Evarthrus incisus. L. V.
Pterostichus longulus. G., V. P., 9,200.
Pterostichus convexicollis. A.
Pterostichus orinomum. G.
Amara sp. differs from erratica by base of antennæ testaceous. A.
Amara interstitialis. V. P., 9,400.
Amara terrestris. V. P., 9,400.

Amara remotestriata. V. P., 9,400.
Amara diffinis. V. P., 9,200.
Chlænius sericeus. A.
Chlænius pensylvanicus. A.
Brachylobus lithophilus. G.
Cratacanthus dubius. L. V.
Agonoderus pallipes. L. V.
Bradycellus rupestris. A.
Anisodactylus baltimorensis. A.
Bradycellus cognatus. G.
Bradycellus nigrellus. L. V.
Harpalus amputatus. A. G.
Harpalus carbonatus. V. P., 9,200–9,400.
Harpalus ellipsis. G., V. P., 9,400.
Harpalus pleuriticus. A.
Harpalus clandestinus. G.
Harpalus, near somnolentus or fallax. A.
Harpalus basilaris. A.
Harpalus alienus, n. sp. 508. V. P., 9,400.
Harpalus montanus.
Harpalus oblitus. G., V. P., 9,500.
Patrobus longicornis. G., L. V.
Trechus micans. G.
Bembidium bifossulatum. A., G., L. V.
Bembidium longulum. G., L. V.
Bembidium transversale. G., L. V.
Bembidium stabile, n. sp. 508. L. V.
Bembidium bimaculatum. G.
Bembidium, n. sp., near postremum. V. P., 9,400.
Bembidium lucidum. G., L. V., V. P., 9,400.
Bembidium gelidum. G., L. V., V. P., 9,200.
Bembidium umbratum. G.
Bembidium cordatum. V. P., 9,400.
Bembidium arcuatum. G.
Bembidium æneicolle. G.
Bembidium nigripes. Everywhere, 7,000–9,500.
Bembidium rapidum. G., V. P., 9,400.
Bembidium versicolor. A., G.
Bembidium pictum. G., L. V.
Bembidium crurale. G.
Bembidium præcinctum, n. sp. 509. A.
Bembidium rubiginosum, n. sp. 508. G., V. P., 9,400.
Bembidium acutifrons, n. sp. 509. A., V. P., 9,200.
Bembidium connivens. L. V.
Bembidium axillare. V. P., 9,350.
Tachys nanus. V. P., 9,400.
Tachys incurvus. L. V.
Haliplus cribrarius. G., 8,300.
Haliplus ruficollis *De Geer* (not *Dej.*, as printed in Crotch, Ch. List). A., G.
Hydroporus affinis. G.
Hydroporus obscurellus. A.
Hydroporus inæqualis. G.
Hydroporus, 3 sp. A.
Hydroporus sellatus. A.
Hydroporus striatellus. G., A.
Hydroporus griseostriatus. A.
Hydroporus, n. sp. G.
Hydroporus, n. sp. V. P., 9,350.
Laccophilus decipiens. A.
Acilius fraternus. A.
Gaurodytes Lecontei? Differs in being less oval and more parallel. A.
Gaurodytes tristis. G.
Gaurodytes obliteratus. Como, Wy.
Gaurodytes parallelus. G., L. V.
Gyrinus, n. sp. A.
Gyrinus borealis. A.
Helophorus lacustris. G., A.
Helophorus oblongus. G., A. V. P., 9,500.
Helophorus lineatus (small form). G.
Ochthebius cribricollis. G.
Ochthebius Holmbergi. A., G.
Ochthebius discretus Lec. var. V. P., 9,200–9,400.
Hydræna, n. sp.? Everywhere, 7,000–10,000.
Tropisternus sp. G.
Berosus striatus. G.
Laccobius agilis. G.
Philhydrus diffusus. A., G.
Hydrobius fuscipes. G., V. P., 9,350.
Hydrobius scabrosus. V. P., 9,350.
Hydrobius feminalis Lec. Como, Wy.
Hydrobius subcupreus. G., L. V.
Cercyon, not named; a common northern species. G., L. V., V. P., 9,200.
Ptenidium evanescens. G.
Ptilium, n. sp. G.
Trichopteryx, very near Haldemanni. G., V. P., 9,200.
Trichopteryx, near Haldemanni. V. P., 9,200.
Trichopteryx, very near californica. G., V. P., 11,200.
Ocalea sp. V. P., 11,000.
Homalota 4 sp. G.
Homalota plana. G., V. P., 9,400.
Homalota fungi. V. P., 9,200.
Homalota sp. V. P., 11,000.
Homalota sp. G., L. V., V. P., 9,000.
Homalota sp. G., V. P., 9,200.
Homalota sp. V. P., 9,200–11,000.
Homalota sp. G., V. P., 9,400.
Homalota sp. V. P., 9,200–11,000.
Homalota sp. V. P., 11,000.

Homalota lividipennis. L. V.
Homalota sp. G., V. P., 9,200.
?Homalota sp. V. P., 9,000.
?Homalota sp. V. P., 9,000.
?Homalota sp. V. P., 9,200.
?Homalota sp. L. V.
Placusa sp. G., V. P., 9,400.
Echidnoglossa sp. V. P., 9,300–10,000.
Tachyusa sp. L. V.
Tachyusa sp. V. P., 9,200.
Tachyusa sp. G., L. V.
Tachyusa sp. V. P., 9,300–9,500.
Tachyusa sp. G.
?Myrmedonia. L. V.
Aleochara bimaculata.? G.
Aleochara sp. Everywhere, 7,000–11,200.
Dasyglossa prospera. G., V. P., 9,200–9,400.
Oxypoda, 2 sp. V. P., 9,200–11,000.
?Oxypoda sp. L. V.
Myllæna, found also in California. L. V., V. P., 9,200.
Gyrophæna (Encephalus) sp. G.
Gyrophæna (Encephalus) sp. V. P., 9,200.
Gyrophæna (Encephalus) sp. G.
Hypocyptus nigritulus, n. sp. 510. G., V. P., 9,200.
Tachinus repandus. G., L. V.
Tachinus agilis. V. P., 9,400.
Tachinus parallelus, small dark specimen. V. P., 11,200.
Tachyporus chrysomelinus. A. G., L. V.
Tachyporus nanus. A.
Tachyporus brunneus. V. P., 9,400.
Bolitobius pygmæus. G., V. P., 9,200.
Bolitobius intrusus. V. P., 9,400.
Bryoporus rufescens, var. *rubidus*. V. P., 9,400.
Mycetoporus lepidus (very large). G.
Mycetoporus consors. G.
Mycetoporus tenuis var. G., V. P., 9,200–11,000.
Mycetoporus americanus. G., V. P., 9,200.
Heterothops fumigatus. G.
Quedius spelæus. G., V. P., 9,200.
Quedius prostans *Horn*. G., V. P., 9,400.
Quedius hyperboreus. G., V. P., 9,200.
Quedius lævigatus. V. P., 9,400.
Quedius molochinus. V. P., 9,200.
Quedius molochinus, small var. V. P., 11,000, on snow-fields.
Philonthus debilis. G., V. P., 9,400.
Philonthus, n. sp. A.
Philonthus, n. sp. L. V.
Philonthus, n. sp. G.
Philonthus nigritulus. G., V. P., 9,200.
Philonthus sp. G.
Philonthus, n. sp., found also in California. G., L. V.
Philonthus, near cinerascens. A similar species (perhaps the same) occurs in California. G., L. V.
Xantholinus cephalus. V. P., 9,400.
Xantholinus obscurus. A.
Lathrobium punctulatum. A.
Lathrobium tenue. A.
Lathrobium collare. A.
Scopæus, 3 sp. V. P., 9,400.
Lithocharis ?. G.
Dianous nitidulus. G.
Stenus sp. G.
Stenus sp. A.
Stenus sp. V. P., 9,400, G.
Stenus sp. A., G.
Stenus morio Grav. A., G., V. P., 9,200.
Stenus alpicola Fano. G., V. P., 9,400.
Stenus tarsalis Ljung. A., G., V. P., 9,400.
Bledius, n. sp., differs from *armatus* by hind angles of prothorax obtuse, distinct. G., V. P., 9,200.
Bledius, n. sp., like *sinuatus*, but thorax larger and less punctured. G.
Bledius, n. sp., prothorax less punctured than in *confusus*. G.
Bledius, n. sp. G.
Bledius, n. sp., near rubiginosus. G.
Platystethus americanus. G., L. V.
Oxytelus fuscipennis. V. P., 9,200.
Oxytelus, n. sp. G., L. V.
Oxytelus nitidulus. G., L. V., V. P., 9,400.
Apocellus sphæricollis. G.
Trogophlœus sp. V. P., 9,400.
Trogophlœus memnonius. A.
Trogophlœus, 4 sp. G.
Trogophlœus sp. V. P., 9,200.
Trogophlœus corticinus Grav. G., V. P., 9,200.
Geodromicus plagiatus (ovipennis Lec.). V. P., 9,200–9,400.
Lesteva fusconigra. V. P., 9,400–11,000.
Olophrum marginatum. V. P., 9,200.
Olophrum, n. sp.? V. P., 9,000.
Deliphrum expansum, n. sp. 510. V. P., 11,000.
Orobanus simulator. V. P., 9,400.
Micrœdus Austinianus. V. P., 9,400.
Omalium foraminosum. V. P., 9,200.
Omalium planum. G., V. P., 9,400.
Omalium pusillum. V. P., 9,400.
Anthobium, n. sp. V. P., 9,000–11,500.
Megarthrus sinuatocollis (*angulicollis* Mäkl.). V. P., 9,200–11,000.
Siagonium punctatum. V. P., 9,400.

Pseudopsis sulcata. G., V. P., 9,200.
Pseudopsis obliterata, n. sp. 511. L. V.
Micropeplus laticollis. V. P., 9,200–11,000.
Bryaxis albionica. G., V. P., 9,200.
Catops brunnipennis. L. V.
Colon, n. sp., found also in Middle States. G., V. P., 9,400.
Colon, n. sp. V. P., 11,000.
Colon dentatus. V. P., 9,200.
Colon clavatus? V. P., 11,000.
Hydnobius obtusus, n. sp. 511. G., V. P., 9,200.
Hydnobius longidens, n. sp. 511. G.
Hydnobius curvidens, n. sp. 511. L. V., G.
Hydnobius pumilus, n. sp. 511. V. P., 9,200.
Anisotoma, allied to collaris. G., V. P., 9,400.
Anisotoma, n. sp. V. P., 9,200.
Anisotoma, n. sp. V. P., 9,400.
? Cyrtusa sp. V. P., 9,200.
Liodes globosa. V. P., 11,000.
Agathidium, n. sp. One specimen found by Crotch in Vancouver. V. P., 9,400.
Agathidium angulare. V. P., 11,000.
Agathidium, n. sp.? perhaps ♀ of difforme. G.
Agathidium effluens. G.
Calyptomerus oblongulus. V. P., 9,200–11,000.
Clambus vulneratus, n. sp. 512. G.
Clambus gibbulus. G.
Scydmænus, n. sp. G.
Scydmænus, n. sp. G., V. P., 9,000.
Euthia longula, n. sp. 513. G.
Orthoperus, n. sp. G.
Orthoperus scutellaris. G.
Sacium lugubre. G., V. P., 9,200–11,000.
Sacium biguttatum, n. sp. G., V. P., 9,200–11,000.
Lathridius (Stephostethus), sp. G., L. V., V. P., 9,200.
Lathridius (Enicmus), near laticollis. G., V. P., 9,400.
Corticaria, n. sp. G.
Corticaria, near serricollis. G.
Corticaria serricollis. G., V. P., 9,400.
Corticaria, n. sp. G.
Corticaria, n. sp. V. P., 9,400.
Corticaria deleta. G., V. P., 9,200.
Corticaria, near scissa. A., G., V. P., 9,400.
Corticaria scissa. G., V. P., 9,200–11,000.
Corticaria expansa. G., V. P., 9,200–11,000.
Corticaria, n. sp. V. P., 9,400.
Corticaria angularis. G.
Corticaria, n. sp. L. V., V. P., 9,200.
Corticaria pumila. G.
Corticaria, n. sp. G., V. P., 9,200.
Dermestes fasciatus. L. V.
Perimegatoma cylindricum (*Kirby*). G., A.
Anthrenus scrophulariæ v. lepidus. G.
Mycetina morosa. V. P., 9,400.
Triplax californica. L. V.
Antherophagus convexulus. 512. G.
Emphylus americanus, n. sp. 513. V. P., 11,500.
Cryptophagus, 4 sp. G., V. P., 9,200–11,000, L. V.
Paramecosoma dentatum. G., V. P., 10,000.
Atomaria, 7 sp. G., V. P., 9,200–9,400.
Hypocoprus formicetorum? G.
Pediacus fuscus. A.
Pediacus depressus. V. P., 9,200.
Læmophlœus, n. sp. V. P., 9,400.
Dendrophagus glaber. V. P., 9,400.
Lyctus planicollis? V. P., 9,400.
Rhizophagus scalpturatus. V. P., 9,400.
Monotoma fulvipes. G.
Nemosoma cylindricum. V. P., 9,400.
Brachypterus urticæ. L. V., G.
Epuræa Erichsonii? larger than usual. V. P., 9,400.
Epuræa truncatella. V. P., 9,000–9,400.
Epuræa linearis. V. P., 9,200–9,400.
Epuræa ovata *Horn*. G.
Omosita discoidea. V. P., 9,200.
Meligethes ruficornis. G., L. V.
Meligethes seminulum. L. V., G., V. P., 9,000–10,000.
Ips confluens, var. vittatus. V. P., 9,400.
Phalacrus dispar, n. sp. 513. V. P., 9,400.
Phalacrus seriatus. G.
Phalacrus penicellatus. G.
Phalacrus simplex. A., G.
Olibrus apicalis. L. V., G.
Hippodamia convergens. G., V. P., 9,000.
Hippodamia 13-punctata. G.
Hippodamia Lecontei. G., L. V.
Hippodamia parenthesis. A., G., V. P., 9,400.
Anisosticta episcopalis. G.
Coccinella 9-notata and var. transversalis. Everywhere, 7,000–11,500.
Coccinella trifasciata. L. V., V. P., 9,400.
Adalia frigida. G., V. P., 9,000.
Harmonia picta. G., V. P., 9,300.
Anatis subvittata. G., V. P., 9,400.
Psyllobora 20-maculata. L. V., G.
Exochomus marginipennis, var. æthiops. G., V. P., 9,400.
Brachyacantha ursina. G., L. V.

Hyperaspis, near lateralis. G.
Hyperaspidius trimaculatus. A., G., L. V.
Scymnus coniferarum. G., V. P., 10,500.
Scymnus, n. sp. G.
Scymnus Phelpsii. G.
Scymnus cervicalis? G.
Scymnus lacustris. G., V. P., 9,000.
Scymnus, n. sp. G.
Scymnus, n. sp. G.
Scymnus, n. sp., near coniferarum. V. P., 9,400–11,000.
Georyssus pusillus. G.
Byrrhus geminatus. V. P., 9,400.
Byrrhus americanus. V. P., 9,200.
Syncalypta grisea, n. sp. 514. G.
Limnichus montanus, n. sp. 515. L. V.
Helichus striatus. G., L. V., V. P., 9,400.
Elmis corpulentus. V. P., 9,400.
Heterocerus substriatus? A., G.
Hister perplexus. A.
Platysoma punctigerum. V. P., 9,400.
Paromalus debilis, n. sp. 516. V. P., 9,400.
Saprinus oregonensis. G., A.
Saprinus fimbriatus. G., A.
Saprinus fraternus. G.
Teretrius americanus. V. P., 9,000, L. V.
Plegaderus Sayi. V. P., 9,400.
Canthon praticola. G.
Aphodius torpidus *Horn.* A.
Aphodius hyperboreus, form *omissus.* Probably a good species, distinguished by the triple striæ. G.
Aphodius vittatus. G.
Aphodius, n. sp., near pectoralis. G.
Aphodius alternatus. A., G.
Aphodius bidens *Lec.* G.
Aphodius cruentatus *Lec.* V. P., 9,400.
Aphodius explanatus *Lec.* G.
Aphodius coloradensis. G.
Ægialia lacustris. G., L. V., V. P., 9,200.
Ægialia rufa *Lec.* V. P., 9,200.
Odontæus obesus. V. P., 9,400.
Dichelonycha Backii. G., V. P., 9,400.
Dichelonycha sulcata. G., V. P., 9,100.
Serica, n. sp. G.
Diplotaxis brevicollis. G., V. P., 9,400.
Lachnosterna cephalica. Atlanta, Idaho.
Trichius assimilis. L. V.
Trachykele Lecontei. G.
Melanophila longipes. G.
Melanophila Drummondi. G.
Agrilus politus. A., G., V. P., 9,400.
Adelocera profusa. G.
Cardiophorus luridipes. G.
Cardiophorus, n. sp. G.
Cryptohypnus bicolor. V. P., 9,200.
Cryptohypnus, near tumescens. V. P., 9,400.
Cryptohypnus, n. sp. G.
Cryptohypnus, n. sp. G.
Cryptohypnus gentilis. A., G.
Elater, n. sp., near Behrensii. V. P., 11,500.
Elater phœnicopterus. V. P., 9,200.
Drasterius, n. sp. A.
Agriotes, n. sp. V. P., 9,400.
Dolopius lateralis *Esch.* G.
Limonius, n. sp. G., V. P., 9,400.
Corymbites inflatus, form glaucus. G., V. P., 9,400.
Corymbites carbo. V. P., 9,400.
Corymbites æripennis, form tinctus. V. P., 9,200.
Corymbites triundulatus. G.
Corymbites metallicus. G., V. P., 9,200–9,400.
Corymbites conjungens. Atlanta, Idaho.
Corymbites mœrens. G., V. P., 9,400.
Cænia sanguinipennis. L. V.
Dictyoptera ruficollis *Lec.* G.
Photinus corruscus, form lacustris. G., V. P., 9,400.
Podabrus lateralis. G., V. P., 9,200–11,500.
Podabrus lateralis? var. V. P., 9,200.
Telephorus, n. sp. L. V., V. P., 9,200.
Telephorus fraxini. G., L. V.
Telephorus, n. sp. G.
Silis, n. sp. G.
Malthodes, n. sp. V. P., 9,200–9,400.
Malthodes, n. sp. L. V.
Malthodes, n. sp. L. V.
Collops, n. sp., near hirtellus. A.
Collops eximius? var. A., G., L. V.
Collops bipunctatus. A., G., L. V.
Collops vittatus. A., G.
Collops, n. sp.? or var. of vittatus. A.
Malachius montanus *Lec.* A., L. V., G.
Pseudebaeus obscurus, n. sp. 516. G.
Attalus morulus. A., G.
Attalus basalis. G.
Dasytes hudsonicus. G., V. P., 9,200–11,000.
Listrus, n. sp. G., V. P., 9,200.
Listrus, n. sp., found also in Utah. G.
Trichodes ornatus. G., V. P., 9,400.
Clerus nigrifrons. G., V. P., 9,400.
Clerus undatulus. V. P., 9,200–11,500.
Hydnocera subfasciata. G., L. V., A.
Corynetes violaceus. G., L. V.
Ernobius tristis, n. sp. 516. V. P., 9,200.
Ernobius gracilis, n. sp. 516. G.
Gastrallus marginipennis, n. sp. 517. G

Xyletinus fucatus. V. P., 9,400.
Dinoderus substriatus. G., V. P., 9,400.
Asemum moestum. V. P., 9,400.
Criocephalus productus. V. P., 9,400, G.
Phymatodes maculicollis. G.
Callimus chalybæus. G.
Phymatodes dimidiatus. V. P., 9,400.
Batyle ignicollis. L. V., G.
Xylotrechus annosus. G.
Neoclytus albofasciatus, var. G.
Atimia confusa. G.
Rhagium lineatum. V. P., 9,200.
Acmæops longicornis. G., V. P., 9,000–9,400.
Acmæops proteus, form gibbula. G., V. P., 9,400,
Acmæops pratensis. V. P., 9,200–11,000.
Gaurotes Cressoni. V. P., 9,000.
Leptura subargentata. V. P., 9,200–9,500.
Leptura sanguinea. V. P., 9,400.
Acmæops ligata, var. V. P., 9,000.
Pogonocherus mixtus var. simplex *Lec.* V. P., 9,000.
Bruchus discoideus. L. V.
Bruchus amicus. L. V., G., V. P., 9,400.
Bruchus seminulum. G.
Donacia magnifica. A.
Donacia pyritosa. G.
Orsodachna Childreni. G., V. P., 9,000–11,500.
Zeugophora abnormis. V. P., 9,400–11,000.
Syneta ferruginea. V. P., 11,500.
Lema trilineata. L. V.
Coscinoptera vittigera. A., G., L. V.
Cryptocephalus 4-maculatus, *Say*, *Suffr.* G., L. V.
Cryptocephalus, n. sp. L. V., G.
Cryptocephalus auratus. L. V.
Pachybrachys, n. sp. L. V., G.
Pachybrachys, n. sp. V. P., 9,300.
Pachybrachys atomarius. A., G., L. V.
Pachybrachys, n. sp. G., V. P., 9,200.
Adoxus vitis. G., V. P., 9,000–11,500.
Colaspis tristis. L. V.
Chrysomela exclamationis. L. V.
Chrysomela multipunctata. A., L. V.
Prasocuris phellandrii. V. P., 11,500.
Lina scripta, var. V. P., 9,400.
Plagiodera, n. sp. ? G.
Plagiodera oviformis. V. P., 9,400.
Luperus meraca. L. V.
Luperus varipes. V. P., 9,200–9,300.
Luperus nigrocyaneus, n. sp. 517. V. P., 9,200.
Adimonia externa. V. P., 11,500.
Galleruca salicis. L. V.
Galleruca decora. G.
Monoxia debilis. G., L. V., V. P., 9,000.
Trirhabda convergens. G., L. V.
Disonycha punctigera. L. V.
Graptodera foliacea. G., L. V., V. P., 9,400.
Graptodera punctipennis. L. V.
Graptodera, near inærata. A., V. P., 9,200.
Graptodera torquata. V. P., 9,400–10,000.
Longitarsus, 2 sp. L. V.
Batophila ? n. sp. L. V., V. P., 9,400.
Batophila cerina. G., A., V. P., 9,400–11,500.
Phyllotreta vittata *Fabr.* A., G.
Phyllotreta robusta. A., G.
Phyllotreta albionica. L. V. (Cheyenne).
Phyllotreta, id. form texana *Crotch.* Everywhere, 7,000–11,500.
Dibolia aerea. V. P., 9,000.
Systena mitis. L. V.
Crepidodera helxines. G.
Epitrix cucumeris. L. V.
Epitrix hirtipennis, var. L. V.
Mantura floridana. A.
Chætocnema rudis. V. P., 9,400.
Chætocnema irregularis. V. P., 9,400, G.
Chætocnema cylindrica. G.
Chætocnema protensa. G., L. V., V. P., 9,200.
Chætocnema cribrifrons, n. sp. 518. A.
Chætocnema opacula. A., G.
Chætocnema subviridis. L. V., A., G., V. P., 9,200.
Chætocnema pulicaria. A.
Chætocnema æneola, n. sp. 518. G.
Psylliodes lacustris. G.
Blepharida rhois. L. V.
Coptocycla aurichalcea. L. V.
Odontota collaris. L. V.
Coniontis ovata. V. P., 9,400.
Coniontis obesa. G., V. P., 11,500.
Eleodes tricostata. L. V., G., V. P., 9,400.
Eleodes carbonaria. G.
Eleodes nigrina. V. P., 9,200.
Eleodes extricata. G., V. P., 9,200–11,500.
Eleodes pimelioides. G.
Emmenastus acutus. G.
Blapstinus vestitus. G., V. P., 9,200.
Blapstinus pratensis, var. A., G.
Blapstinus mœstus. A., V. P., 9,200.
Hypophlœus parallelus. V. P., 9,400.
Helops montanus, n. sp. 518. G., V. P., 9,400.
Corphyra Lewisii. G., L. V., V. P., 9,400.
Notoxus anchora. G., L. V., A., V. P., 9,200.
Notoxus serratus. G.
Notoxus bifasciatus. G.

Anthicus, n. sp. G.
Anthicus punctulatus? smaller than the Californian specimens. L. V., G.
Anthicus cervinus? var. A., G.
Canifa pallipes. L. V.
Tetratoma concolor, n. sp. 519. V. P., 9,200.
Scotochroa basalis. G.
Pentaria, near trifasciata. L. V.
Anaspis rufa. L. V., V. P., 9,000.
Anaspis nigra. G., V. P., 9,400.
Anaspis atra. G.
Mordella scutellaris. G.
Mordellistena fuscata. L. V.
Mordellistena pustulata. L. V., G.
Mordellistena angusta. V. P., 9,000–9,400.
Mordellistena unicolor. L. V., G.
Mordellistena morula. G., V. P., 9,400.
Mordellistena æmula. L. V.
Epicauta pensylvanica. V. P., 9,200.
Epicauta maculata. L. V., G., V. P., 9,200.
Cantharis viridana. V. P., 9,400.
Cantharis sphæricollis. G.
Nemognatha apicalis. Atlanta, Idaho.
Lacconotus pinicola *Horn*. V. P., 9,200–9,400.
Salpingus, sp. G., V. P., 9,400.
Rhinomacer comptus. V. P., 9,200–9,400.
Auletes subcœruleus. V. P., 9,200.
Rhynchites glastinus. L. V., V. P., 9,000.
Rhynchites bicolor. L. V.
Aragnomus griseus. G.
Rhypodes brevicollis. G.
Diamimus subsericeus. G.
Thricolepis inornata. G., V. P., 9,000–9,400.
Peritaxia rugicollis. G., V. P., 9,400.
Orimodema protracta *Horn*. V. P., 9,300.
Scythropus, n. sp. G.
Pandeleteius hilaris. L. V.
Sitones tibialis. Everywhere, 7,000–11,500.
Trichalophus planirostris. V. P., 9,200.
Lepidophorus, n. sp.? G., V. P., 9,200.
Lepyrus geminatus. G.
Listronotus latiusculus? A.
Listronotus nevadicus? Atlanta, Idaho.
Macrops vitticollis *Kirby*. A., G., V. P., 9,400.
Macrops solutus. A.
Pissodes costatus. V. P., 9,200–9,400.
Lixus musculus. L. V.
Procas, n. sp. (*picipes*‡ Lec.). V. P., 9,400.
Grypidius brunnirostris. G., V. P., 9,200.
Grypidius Equiseti, var.? G.
Dorytomus mucidus. L. V.
Dorytomus hispidus. G.
Dorytomus luridus. G.
Dorytomus squamosus. G.
Desmoris, sp.? L. V.
Desmoris, n. sp. G.
Smicronyx tychioides. L. V.
Smicronyx vestitus. L. V.
Phyllotrox nubifer. V. P., 9,200.
Endalus ovalis. A., G.
Endalus, near æratus. A., G.
Bagous, n. sp. G.
Bagous californicus. A.
Lixellus filiformis. A.
Anthonomus rufipennis. G.
Anthonomus squamosus. L. V.
Anthonomus, n. sp. G., L. V., V. P., 11,500.
Anthonomus canus. G., V. P., 9,200.
Acalyptus ephippiatus. A., G., L. V.
Proctorus decipiens. L. V., G.
Orchestes niger. L. V., G., V. P., 9,200.
Orchestes rufipes. L. V., G., V. P., 9,200.
Tychius tectus. G.
Magdalis Lecontei. G., V. P., 9,400–11,000.
Magdalis gentilis. G., V. P., 9,200–11,500.
Magdalis, near hispoides. G., V. P., 9,000–11,000.
Magdalis inconspicua. A.
Nanophyes pallidulus. A.
Copturus nanulus. G.
Copturus adspersus. L. V.
Cœliodes curtus. L. V.
Ceuthorhynchus decipiens. G., V. P., 9,400.
Ceuthorhynchus sericans. A., G., V. P., 9,200–9,400.
Ceuthorhynchus, n. sp., near rapæ. G.
Ceuthorhynchus pusillus. A., G.
Pelonomus squamosus. G.
Rhinoncus pyrrhopus. Atlanta, Idaho.
Pseudobaris angusta. A.
Pseudobaris, near nigrans. A.
Onychobaris subtonsa. L. V.
Baris striata. L. V.
Balaninus uniformis. L. V.
Sphenophorus Ulkei *Horn* (variolatus Lec.). A., G.
Cryphalus mucronatus, n. sp. 519. V. P., 9,300.
Pityophthorus deletus, n. sp. 519. G., V. P., 9,000–9,400.
Pityophthorus nitidulus. G., V. P., 9,000–9,400.
Pityophthorus fossifrons *Lec.* G., V. P., 9,000.
Pityophthorus cariniceps *Lec.* V. P., 9,300.
Pityophthorus (Gnathotrichus) retusus. V. P., 9,400.
Pityophthorus cælatus. V. P., 9,400.

Xyloterus bivittatus. G.
Tomicus plastographus. V. P., 9,400.
Tomicus rectus. V. P., 9,400.
Tomicus latidens, ♀. V. P., 9,400.
Scolytus unispinosus. V. P., 9,200.
Dendroctonus terebrans, form validus. G.
Dendroctonus similis var.?. G.
Hylesinus sericeus. G.
Phloeotribus puberulus, n. sp. 520. V. P., 9,400.
Phloeosinus serratus? or n. sp. G.
Hylastus longus. G., V. P., 9,400.
Hylurgops rugipennis. V. P., 9,400.
Allandrus bifasciatus. G.
Brachytarsus alternatus. L. V.
Apion, 3 sp. G., L. V., V. P.

III.—DESCRIPTIONS OF NEW SPECIES.

CICINDELA WILLISTONI.—Of the usual dull bronzed brown above, with green and bluish reflexions in the impressions of the prothorax, not shining; beneath metallic blue and green, clothed with erect coarse white hair, except at the middle of the ventral segments. Labrum white, with narrow black margin, transverse, sinuate in front, with an acute tooth at the middle; base of mandibles white; labial palpi testaceous, last joint black. Head as rough as in the allied species, longitudinally rugose near the eyes, and more finely upon the front, which is blue and green, and not hairy. Prothorax as rugose as in *C. formosa;* sides slightly rounded only in front, not or scarcely narrowed behind; base less cylindrical than in the allied species; impressions deep, sides with coarse erect white hair. Elytra rather strongly punctured, with a broad lobed white margin and refracted wide white band, the descending portion of which is long, and hooked very near to the terminal lunule; humeral lunule not at all oblique; bead of side margin dark metallic; apex rounded and alike in both sexes, scarcely perceptibly serrate; sutural spine small. Length, 10.5–14^{mm}.

Lake Como, Wyoming Territory; found in abundance on alkaline mud by Mr. S. W. Williston, of Yale College Scientific Expedition.

♂ Prothorax very slightly narrower behind the middle; sides of elytra not dilated; left mandible slightly and very obtusely angulated on the outer edge, near the tip.

♀ Prothorax flatter and wider at the base than in the ♂; sides of elytra distinctly though but slightly dilated just in front of the middle; mandibles alike, not angulated near the tip, but regularly rounded.

This might be readily taken for a race of *formosa*, *latesignata*, or *fulgida*, with which it agrees in having the outer edge of the mandibles acute, as well as in general characters and appearance. Nevertheless it differs from *fulgida* by less smooth and shining upper surface, and from all of the three by the pattern of the markings, which do not perceptibly vary, and by the sexual characters. It shows in the latter a tendency towards *repanda*, *hirticollis*, &c., but in those species the balance of specific distinctions is preserved by the mandibles being more slender, much more prolonged at the tip, and destitute of the acute slightly explanate external edge seen in the *formosa* group.

DYSCHIRIUS MONTANUS.—Elongate, brownish black, with brassy reflexion; antennæ and legs brown. Epistoma truncate, with angles prominent; front with a transverse impression interrupted at the middle, so as to form a very small crest. Prothorax less shining, not longer than wide, slightly narrowed in front; sides distinctly margined; anterior transverse impression rugose. Elytra cylindrical, striæ nearly complete, not coarsely punctured, punctures obsolete toward the tip; third interspace without dorsal punctures; basal puncture large at base of first and second striæ; marginal stria not extending along the base. Front tibiæ with two small teeth on outer edge; terminal digitation slightly curved; apical spur longer, much curved. Length, 2.8mm.

Garland, Colo. Seems to resemble *D. curvispinus* Putz, which is unknown to me, but differs by darker color and by head without deep transverse impression; differs from *D. pumilus* Dej. (*D. dentiger* and *falciger* Lec.) by more elongate form, less shining thorax, and less strongly punctured elytral striæ. The form is almost as slender as *D. filiformis* Lec.

HARPALUS ALIENUS.—Resembles greatly in appearance *Anisodactylus nigrita*, black shining, antennæ, palpi, and front tarsi piceo-rufous. Prothorax nearly twice as wide as long, emarginate in front, truncate and finely margined at base; sides rounded, hind angles obtuse rounded at tip; side margin depressed and punctulate, wider toward the base, where it is confluent with the basal impressions, which are large, shallow, and punctulate; dorsal line fine. Elytra (♂) shining, striæ deep, interspaces flat, dorsal puncture distinct; ventral segments without accessory punctures or setæ; middle of first and second segments punctulate. Length, 12mm.

Veta Pass, one ♂; a very distinct species, unlike any other in our fauna, known to me.

BEMBIDIUM STABILE.—Depressed, greenish black; antennæ brown, base, palpi, and legs testaceous. Prothorax scarcely wider than long, somewhat narrowed behind; sides strongly margined, rounded, subsinuate near the basal angles, which are rectangular and feebly carinate; basal impressions deep, sparsely punctured; dorsal line deep. Elytra with 6 rather finely punctured striæ, gradually shorter, and obliterated behind; dorsal punctures on third stria; marginal stria and groove entire, punctures very few. Length, 6–7mm.

La Veta, Colo.; found also in San Diego County, Cal., by Mr. O. N. Sanford. This species is related to *B. striola*, but is much larger; the sides of the prothorax are less sinuate, the hind angles much less prominent, and, finally, the apex of the elytra is not pale. As nothing allied to this species has occurred in the more northern regions, I am disposed to regard it as one of the preglacial survivals of the tertiary fauna.

BEMBIDIUM RUBIGINOSUM.—Piceo-rufous, with a slight metallic reflexion; frontal impressions normal, not very deep; eyes rather large. Prothorax quadrate, a little wider than long, slightly narrowed behind, truncate at base, and nearly so at apex; front angles not prominent, sides moderately rounded, oblique, and not sinuate behind; hind angles slightly obtuse, not rounded, finely carinate; dorsal line entire, transverse impressions deep, basal impressions square, deep. Elytra with striæ entire, finely punctured to beyond the middle; outer ones feebly impressed; dorsal punctures 2, connected with the third stria. Length, 3^{mm}.

Garland, Colo., one specimen. A peculiar and easily recognized species, resembling a small *Bradycellus.*

BEMBIDIUM ACUTIFRONS.—Black. Head with deep frontal impressions converging at apex. Prothorax wider in front than long; sides slightly rounded, strongly narrowed, and subsinuate behind; hind angles rectangular, carinated, dorsal line strong, posterior transverse impression and basal impressions deep. Elytra with 7 punctured striæ, outer ones gradually shorter and weaker; dorsal punctures upon the third interspace. Length, 3^{mm}.

Alamosa, Colo., one specimen. Allied to *anguliferum* and *connivens*, but the sides of the prothorax are much less sinuate near the base, the hind angles less prominent, and the legs and elytra are entirely black.

BEMBIDIUM PRÆCINCTUM.—Black shining, elytra finely alutaceous. Head with long oblique impressions, converging but not meeting in front. Prothorax transverse, strongly margined on the sides, much narrower and constricted at base, hind angles small, rectangular, carinate, basal impressions deep, transverse impressions deep, the hind one with a row of punctures, dorsal line fine. Elytra elongate-oval with extremely fine, almost obliterated striæ of small punctures, marginal stria and groove deep, entire, marginal punctures few, dorsal punctures 2, small, connected with the 3rd stria. Length, 3^{mm}.

Alamosa, Colo., one specimen. Allied to *B.* 4-*maculatum*, but is entirely black.

A faunal memoir on the Coleoptera of California has been delayed for more material, and this seems therefore a favorable opportunity for making known the following remarkable species from that region.

BEMBIDIUM TIGRINUM.—Testaceous, occiput, middle of apex and base of prothorax and cloud-like spots on elytra dusky. Depressed; frontal impressions broad, deep, parallel. Prothorax wider than long, widest at middle, scarcely emarginate at apex, nearly truncate at base, sides moderately rounded and strongly margined, base a little narrower than apex, angles slightly obtuse not rounded, and not carinate; dorsal line fine, posterior transverse impression deep, feebly punctulate, basal impressions broad, shallow. Elytra with entire deep impunctured striæ, somewhat less impressed behind and at the sides; dorsal punctures 2, large, situated near the 2nd stria; the dusky markings are connected near the suture as far as the 4th stria, and consist of three parts: a basal group, a transverse band about the middle, and a posterior cloud. The under surface is clouded with dusky. Length, 6^{mm}.

One specimen from the southern part of California, collected by Mr. Hardy, and kindly given me by Dr. D. Sharp.

OCHTHEBIUS DISCRETUS *Lec.*, Proc. Am. Phil. Soc. 1878, 379.—A form of this species was found by Mr. Schwarz at Veta Pass which differs from the Californian specimens by the prothorax less coarsely punctured and the elytral striæ less deep.

GYROPHÆNA (ENCEPHALUS).—Three specimens of three distinct species, which seem referable to this group, were found by Mr. Schwarz at Garland. As many species of *Gyrophæna* are still undescribed, I prefer letting these remain so until a general synopsis can be prepared.

HYPOCYPTUS NIGRITULUS.—Broader than long, convex, thinly pubescent with fine gray hairs, antennæ and legs entirely black, hind angles of prothorax nearly rectangular, not rounded. Length, 0.6^{mm}.

Veta Pass. Differs from *H. Crotchii* Horn, Tr. Am. Ent. Soc. vi, 86, by the color being entirely black, and hind angles of prothorax not rounded.

MYCETOPORUS TENUIS? var.—The specimens from Veta Pass differ from the Lake Superior ones described by Dr. Horn, Tr. Am. Ent. Soc. vi, 122, by darker color, and by the antennæ somewhat more thickened externally.

DELIPHRUM EXPANSUM.—Broad, depressed, narrower in front, piceous shining. Head sparsely finely punctured, with short oblique occipital lines, at the hind end of which, and almost on the neck, are the ocelli. Prothorax twice as wide as long, rounded on the sides, which are finely margined and slightly impressed and explanate behind the middle; front angles much rounded, hind angles obtuse, base finely margined; disc rather finely punctured with an obsolete impressed dorsal line, and a slight basal fovea. Elytra twice as long as the prothorax, wider behind, truncate at tip, sutural angle rectangular; punctured, and indistinctly striate. Abdomen smooth. Tibiæ distinctly spinulose, joints 1–2 of hind tarsi but slightly elongated, 5th nearly as long as the others united. Antennæ thickened externally, 4th joint nearly rounded, shorter than 3d, smaller than 5th, Length, 4^{mm}.

Veta Pass, Colo. The antennæ are nearly as in *Lathrimæum*, but the tibiæ are distinctly spinulose, and the exposed part of the abdomen is as long as the elytra.

OLOPHRUM MARGINATUM (*Kirby*), Fauna Bor. Am. iv, 89, &c. (vide synon. Fauvel, Notice Entom. Staphyl. Am. du Nord, 80).—Veta Pass, Colo. One specimen differs in having the sides of the prothorax very distinctly sinuate near the base, while in two specimens from Alaska the sinuation is very slight. It is possibly a distinct species allied to the European *alpinum*, but I am unwilling to base a description upon a single specimen without farther comparisons.

PSEUDOPSIS OBLITERATA.—Depressed, piceous opaque. Head without elevations. Prothorax transversely oval, sides broadly flattened, disc with four slightly elevated ill-defined costæ. Elytra with two obsolete discoidal costæ, and a more distinct submarginal one; margin acute. Abdomen paler at tip. Antennæ and legs ferruginous. Length, 2^{mm}.

La Veta, Colo.; rare. I found also one specimen in the Gila Valley in 1851.

HYDNOBIUS LONGIDENS.—Elongate-oval, convex, dark rufo-testaceous shining, head finely sparsely punctured, prothorax more distinctly punctured, finely margined at the base. Elytra punctured in slightly confused rows, sutural stria impressed. Length, 2.5^{mm}.

♂ Hind thighs with a large acute compressed tooth, the distal margin of which runs perpendicularly from the knee joint.

Garland; one ♂. There is no specific difference in form, color or sculpture between this and the following species, except in the position of the tooth of the hind femora, and I have therefore confined myself to that character to prevent needless repetition.

HYDNOBIUS CURVIDENS.—Hind thighs of the ♂ with a large compressed tooth about one-third from the distal end; the outer margin of which forms a concave arc of a circle to the knee joint. Length, 2.2^{mm}.

La Veta, Colo.; one ♂.

HYDNOBIUS PUMILUS.—Much smaller, testaceous, elytra more finely punctured than usual, and with extremely fine distant transverse lines. Hind thighs of the ♂ broadly and obtusely dilated near the tip; the distal margin of the tooth thus formed is oblique, and the apex is slightly cuspidate. Length, 1.2–1.5^{mm}.

Veta Pass, Colo.; one ♂. San Mateo, Cal.; one ♀. The punctures of the elytra are smaller than usual, and nearly obliterated towards the tip.

HYDNOBIUS OBTUSUS.—Dark rufo-testaceous, shining, elytra as usual with striæ of large punctures; punctures of interspaces smaller and less numerous. Hind thighs of ♂ broader and more compressed than in the ♀, not toothed, but only obtusely rounded on the lower margin. Length, 2.5^{mm}.

Garland, Colo.; both sexes; occurs also in British Columbia.

The following species are extra-limital.

HYDNOBIUS LONGULUS.—More elongate than the others, oval, convex, rufo-testaceous, shining, elytra with the striæ composed of smaller punctures than usual, those of the interspaces of the same size as those of the striæ, but less close. Hind thighs of ♂ dilated at the extremity into a very large tooth, acute at tip, the distal margin of which is oblique and the proximal concave in an arc of a circle. Length, 2.8^{mm}.

California, Oregon, and British Columbia. Easily known by its more elongate form.

HYDNOBIUS LATIDENS.—Rufo-testaceous, shining, of usual form; striæ composed of finer punctures, less deep near the tip; interspaces with distant, fine transverse lines. Hind thighs of the ♂ strongly dilated into a wide tooth, the distal margin of which is oblique and feebly concave to the knee, the proximal margin straight from the apex to the base of the thigh; apex of the tooth obtuse, but slightly prominent. Length, 2^{mm}.

Anticosti; Mr. W. Couper. Similar to *H. pumilus*, but the elytral punctures are less obliterated behind, and the tooth of the hind thighs is much larger; the thighs are also less punctured.

The hind thighs are not toothed in three specimens of *H. substriatus* Lec. in my collections, and I am therefore unable to place the species properly. It is quite possible that *H. curvidens* above described is the corresponding ♂.

In *Hydnobius Matthewsii* Crotch (Tr. Am. Ent. Soc. 1874, 74.), I perceive no differences in the four specimens in my collection, except that in the two larger ones the spurs of the front tibiæ are very unequal (♂), and in the other two they are nearly equal.

CLAMBUS VULNERATUS.—Oval, convex, black shining, not densely but distinctly pubescent with yellowish hair. Elytra with a large transverse red spot about the middle, which is wider near the suture; antennæ and legs testaceous. Length, 1^{mm}.

Garland, Colo.; one specimen.

SACIUM BIGUTTATUM.—Elongate, black, very finely pubescent. Prothorax not wider at base than its length, sides and apex strongly margined, diaphanous in front for nearly one-third of the length. Elytra each with a rounded red spot a little behind the middle, and half way from the suture to the side. Under surface and legs black. Length, 1.6^{mm}.

Veta Pass, Colo. Of the same size and form as *L. lugubre* and *obscurum*, but the prothorax is rather longer, and the elytral spot distinguishes it at first sight.

ANTHEROPHAGUS CONVEXULUS.—Elongate-oblong, fuscous, antennæ, legs, part of under surface and elytra rufo-testaceous, finely punctulate, clothed with extremely fine pubescence. Prothorax transverse, not wider at base, sides nearly straight and parallel, obsoletely angulated about the middle; hind angles somewhat obtuse, not rounded, base finely margined, foveate each side. Length, 3.2^{mm}.

Le Conte, New Spec. Coleopt. (Smiths. 8vo), 1, 71.

Garland, Colo. In the hind angles of the prothorax being nearly rectangular, and the pubescence very fine, this species approaches (according to description) *A. suturalis* Mäklin, from Alaska, but the color of the latter is said to be black, with the margin of the elytra, the front part of the suture, the antennæ and the legs rufo-testaceous. These differences may possibly not be specific, since the type from Lake Superior and a specimen from Santa Barbara, Cal., are uniform rufo-testaceous.

EMPHYLUS AMERICANUS.—Oblong, dark ferrugineous, scarcely perceptibly pubescent, nearly uniformly punctured; punctures towards the tips of the elytra smaller and less impressed. Length, 2.3^{mm}.

Veta Pass; one specimen found in an ant's nest. This insect resembles altogether the figure of the European *E. glaber* (as given by DuVal, Gen. Col. Europe, ii, pl. 51, f. 252), but the elytra are very *distinctly* punctured, and not *obsoletely* as described by Erichson.

PHALACRUS DISPAR.—Rounded oval, convex, above black-brown, shining, elytra with faint, ill-defined rows of fine punctures, interspaces sparsely punctulate, sutural stria not impressed. Antennæ, legs, and under surface ferruginous. Length, 3^{mm}.

Veta Pass. As large as *P. penicillatus*, and easily known by the sutural stria not being impressed.

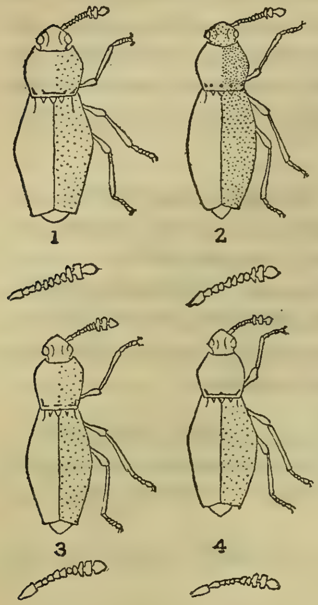
EUTHIA LONGULA.—Elongate, rufo-testaceous, antennæ and legs yellow, elytra from the first third nearly to the tip darker; pubescence sparse and rather coarse. Head with two large shallow foveæ. Prothorax longer than wide, not narrowed in front, slightly rounded on the sides, marked with a transverse impressed line near the base; upon this line are situated two large punctures each side, and a smaller one at the middle. Elytra sparsely punctulate. Length, 1^{mm}.

Garland, Colo.; one specimen. The species are very rare, but the genus is distributed widely over the continent. There are four species in my collection, which may be tabulated thus:

Elytra finely punctulate; prothorax with a transverse line near the base .... **2.**
Elytra distinctly punctured .... *colon.*
2. Prothorax a little wider than long, with a short discoidal line; basal line not extending to the sides, basal foveæ large; piceous, antennæ and legs yellow.. .*scitula.*
Prothorax as long as wide, basal line strong, basal punctures 3, the middle one small, the outer ones near the angles, elongate .... *impressa.*
Prothorax longer than wide, basal line fine, basal punctures 5, the intermediate one smaller .... *longula.*

E. SCITULA, Maeklin, is a little larger than the other species; black, with antennæ and legs yellow. It is easily distinguished by the short slightly impressed dorsal line. Alaska and Lake Superior.

EUTHIA IMPRESSA.—Dark rufo-testaceous, shining, sparsely pubescent. Head convex, smooth, vertex with two small foveæ. Prothorax smooth, a little longer than wide, rounded on the sides, narrowed near the tip; disc convex, with a deep transverse line near the base, upon which is a small medial puncture; near the hind angle each side is a small elongate fovea. Elytra convex, scarcely perceptibly punctulate. Length, 1^{mm}.



1. E. scitula. 2. E. colon.
3. E. longula. 4. E. impressa.

Lake Tahoe, California; two specimens.

E. COLON, Horn, Trans. Am. Ent. Soc. ii, 131.—Elongate, ferruginous, shining, clothed with short sparse coarse yellowish pubescence. Head punctulate, feebly impressed. Prothorax a little wider than long, rounded on the sides, slightly narrower in front than at the base, which is finely margined at the middle, but without transverse impressed line; the disc is punctulate, the two large basal punctures are confluent, and the middle one is smaller. Elytra distinctly punctured. Length, 1^{mm}.

Arizona and San Diego County, California. Two specimens were found by Mr. O. N. Sanford, one of which he has kindly placed in my collection.

SYNCALYPTA GRISEA.—Ovate convex, more pointed behind, black, densely clothed with brownish gray scales, and but slightly mottled; bristles rather long, and clavate as usual. Length, 2.5^{mm}.

Garland, Colo.; one specimen. Much less robust than *S. strigosa*. The sides of the elytra are parallel from the base to beyond the middle. The form of *S. echinata* is regularly oval, and the bristles are larger and more numerous. *S. albonatata* is of the same form as *S. echinata*, but is conspicuously marked with white spots, and the bristles are shorter and fewer..

LIMNICHUS MONTANUS.—Elongate-oval, more obtuse in front than behind, convex, black, imperceptibly punctulate, thinly clothed with fine short whitish hair. Body beneath shining, prosternum sparsely punctured, deeply channelled for three-fourths its length; metasternum sparsely and finely punctured, finely channelled for nearly its whole length. Hind coxæ coarsely punctured. Ventral segments sparsely punctulate; last segment densely punctulate, not impressed. Length, 2^{mm}.

La Veta, Colo.; one specimen. Our species may be thus tabulated:

Table of Species of LIMNICHUS.

Body beneath densely and coarsely punctured	2
Body beneath finely, in part sparsely punctured	3

2. Prosternum widely and deeply grooved, metasternum with a nearly obsolete line; last ventral segment not impressed; oval, greenish bronzed, pubescence brownish gray. 2^{mm}. Eastern America .... **1.** *punctatus.*

Smaller and more elongate, pubescence above brownish, mottled with silvery white. 1.5^{mm}. San Bernardino, Cal. .... **2.** *nebulosus,* n. sp.

3. Body beneath shining **4**

Body beneath opaque **7**

4. Abdomen densely and finely punctured; last ventral slightly impressed, with a patch of longer hair visible in well-preserved specimens; metasternum very coarsely punctured, slightly impressed **5**

Abdomen sparsely and finely punctured, last ventral without patch of hair; metasternum more sparsely punctured, prosternum nearly impunctured **6**

5. Oval, pubescence above slightly mottled; prosternal groove very deep, extending nearly to the front margin; metasternum finely channelled. $2\text{–}2.5^{mm}$. Texas, Colo., Cal. .... **3.** *analis,* n. sp.

Like *analis*, but smaller and broader, less rounded at each end, pubescence above slightly mottled. 2^{mm}. Southern States .... **4.** *ater.*

6. Black, elytra faintly punctulate, pubescence gray (nearly abraded); metasternum channelled for nearly its whole length. 2^{mm}. Veta Pass, Colo... **5.** *montanus,* n. sp.

Smaller, black-bronzed, elytra strongly punctured, metasternum channelled for half the length, sparsely but more coarsely punctured. 1.8^{mm}. California .... **6.** *californicus,* n. sp.

Smaller, ovate, pointed before and behind, black; metasternum channelled for half the length, strongly and coarsely punctured; abdomen finely not densely punctured, last joint convex feebly punctulate, not impressed. 1.4^{mm}. Georgia .... **7.** *nitidulus.*

7. Pubescence rather coarse, elytra sparsely punctured, prosternum deeply channelled. $1.2\text{–}1.4^{mm}$. Texas; Cal. .... **8.** *lutrochinus,* n. sp.

Pubescence fine, elytra feebly punctulate; prosternal channel deeper and broader behind. 1.2^{mm}. Georgia; Florida .... **9.** *ovatus.*

The bibliography is as follows:

1. *L. punctatus* Lec. Proc. Acad. Nat. Sc. Phila., 1854, 116; *olivaceus* Lec. ibid.; $2\text{–}2.5^{mm}$. Middle and Western States.

4. *L. ater* Lec. ibid. 117; *obscurus* Lec. ibid. 116; $2\text{–}2.5^{mm}$. Middle and Southern States.

7. *L. nitidulus* Lec. ibid. 117; 1.75^{mm}. Southern States.

9. *L. ovatus* Lec. ibid.; 1.5^{mm}. Southern States.

The new species are easily recognized by the characters given above without farther description.

PAROMALUS DEBILIS.—Oval subconvex, black, shining, finely punctured. Head finely punctulate. Elytra without sutural stria; there are two short oblique faintly impressed striæ at the base, and two others more feebly impressed, visible near the margin behind the middle. Prosternum without striæ; mesosternum margined only at the sides. Length, 2^{mm}.

Veta Pass; one specimen. Of the same size and form as *P. difficilis* Horn, but much more finely punctured, and with no sutural stria.

PSEUDEBÆUS OBSCURUS.—Black, with a leaden pruinose lustre from extremely fine pubescence. First joint of antennæ, knees, tibiæ, and tarsi tinged with testaceous. Prothorax transverse oval, broadly truncate in front. Elytra more elongate than usual, but little wider than the prothorax (in ♀), not perceptibly punctured. Length, 2mm.

Garland, Colo.; one pair. The tips of the elytra in the ♂ are contorted as usual, and yellow; the ventral segments are entirely black, the last is broadly and deeply emarginate at tip, and not sulcate. Differs from *P. pusillus* by the legs not being yellow, and probably by the sexual characters, though my ♂ specimen of the latter is not in good condition.

ERNOBIUS TRISTIS.—(♂) Elongate, black, shining, finely and scarcely perceptibly pubescent, finely scabrous-punctate. Eyes moderate in size, but very convex. Antennæ half as long as the body, slender, 2d joint stouter than 3d; 3d, 5th and 7th a little longer than the 4th, 6th, and 8th; 9th as long as the 5 preceding united, 10th a little shorter, 11th as long as the 9th. Prothorax twice as wide as long, much rounded on the sides, which are strongly margined. Elytra finely margined. Length, 3.5mm.

Veta Pass; one ♂.

ERNOBIUS GRACILIS.—Elongate, rufo-testaceous, less shining, finely pubescent, densely scabrous-punctulate. Eyes moderate in size, very convex. Antennæ half the length of the body, rather stout, joints 3–8 nearly equal in length, 5th–8th wider than 3d and 4th; 9th as long as the 5 preceding united, 10th and 11th each as long as the 9th. Prothorax more than twice as wide as long, sides very much rounded and widely margined, concavity of the margin extending along the base to a basal fovea, where it becomes narrower. Elytra convex finely margined. Length, 3.7mm.

Garland, Colo.; one ♂. These two species are quite different from those tabulated by me in Proc. Ac. Nat. Sc. Phila. 1865, 224.

The following species from other districts may be described with advantage on the present occasion:

ERNOBIUS LUTEIPENNIS.—Less elongate, piceous, not shining, finely pubescent, elytra dirty reddish yellow, finely punctured and slightly scabrous. Head and prothorax opaque, densely and finely scabrous. Eyes convex, smaller in ♀ than ♂; antennæ 2d joint stout, not much longer than thick; 3d slender, longer than 4th; 4–8 gradually shorter, but not wider; 9–11 varying, as below, according to sex. Prothorax twice as wide as long, narrowed in front, sides moderately rounded, finely margined. Tibiæ and tarsi testaceous. Length, 2.5–3mm.

Massachusetts, on pine boughs; one pair kindly given me by Mr. Frederick Blanchard; found also at White Fish Point, Lake Superior, by Mr. H. G. Hubbard. The antennæ of the ♂ are more than ½ as long as the body, and the joints 9–11 are long and narrow, each being as long as the 1st–8th united. In the ♀ the same joints are wider and each equal in length to the 4th–8th united. This is allied to *E. tenuicor-*

nis Lec. loc. cit. 225, but quite different by the larger, more distinctly scabrous prothorax, and different color.

The last named species was also found by Mr. Blanchard on *Pinus rigida*. The ♀ differs from the ♂ by the smaller eyes and less elongate 9–11 joints of antennæ, which, however, are not as stout as in *E. luteipennis*.

Ernobius filicornis.—Elongate, piceous, head and prothorax nearly opaque, finely punctulate, scabrous, finely pubescent; eyes (♂) large, convex, antennæ very slender, 2d joint stouter, and a little shorter than the 3d, which is slender; 4th–8th short, 9th as long as the 4th–8th united, 10th and 11th each as long as the 9th. Prothorax transverse, sides narrowly margined. Elytra strongly but finely punctured, shining, sparsely pubescent, with very short prostrate hairs proceeding from each puncture, giving a pruinose appearance. Length, 2^{mm}.

Medford, Mass.; one ♂. Mr. E. P. Austin.

Gastrallus marginipennis.—Cylindrical, piceous, not perceptibly punctulate, clothed with extremely fine sericeous gray pubescence, antennæ and legs testaceous. Prothorax uniformly convex in front, hind angles obliquely explanate. Elytra with one marginal stria, which is fainter near the middle and obliterated near the tip. Length, 1.5–2^{mm}.

Garland, Colo.; several specimens. This is the first recognition of the genus in our fauna.

Luperus nigrocyaneus.—Black or blue black, shining, antennæ and legs piceous, base of the former testaceous, front tibiæ and tarsi tinged with same color. Prothorax about as long as wide, moderately rounded and finely margined on the sides, slightly narrowed in front, nearly smooth without vague transverse impression. Elytra a little wider than the prothorax, punctulate. Antennæ with 3d joint longer than 2d but shorter than 4th. Length, 3.3–4.3^{mm}.

Veta Pass. In the ♂ the 5th ventral is smooth at the middle and feebly impressed transversely; the last dorsal is obtusely triangular and hollow beneath at the tip. Resembles *L. cyanellus* Lec., but the antennæ and legs are dark, and the sides of the prothorax are more rounded, especially near the base.

Chætocnema cribrifrons.—Elongate-oval, convex, coppery bronze rather shining. Head sparsely punctured, front with a few very large punctures. Prothorax transverse, slightly narrowed in front, rounded on the sides, punctured. Elytra with striæ composed of large punctures, interspaces flat, smooth. Ventral segments, 1st, 2d, and 3d nearly smooth at the sides; 4th and 5th sparsely deeply punctured. Antennæ brown, outer joints piceous. Legs partly brown. Length, 2.8^{mm}.

Alamosa, Colo.; one specimen. Of nearly the same form as *C. pro-*

tensa Lec., but quite different by the coarse sparse punctures of the front, and the nearly smooth 1–3 ventral segments. The scutellar stria is less elongated.

CHÆTOCNEMA ÆNEOLA.—Elongate-oval, convex, dull bronze, somewhat shining. Head impunctured, subopaque. Prothorax transverse, scarcely narrowed in front, broadly rounded on the sides, finely margined at the base, punctulate, with a basal row of large punctures interrupted at the middle for about ⅓ the width. Elytra but little wider than prothorax, striæ finely and closely punctured, interspaces indistinctly punctulate, slightly convex. Antennae, tibiæ and tarsi testaceous, outer joints of the former dusky. Last two ventral segments more deeply punctured than the others. Length, 1.5^{mm}.

Garland, Colo. Similar to *opacula*, but differs by the head less opaque, and the prothorax more finely punctured, as well as by the deeper and more finely punctured elytral striæ.

HELOPS MONTANUS.—Elongate-oblong, convex, black shining, with brassy lustre. Head rather densely punctured, transverse impression broad, eyes small, convex. Prothorax one-half wider than long, punctured, sides rounded, margin narrowly reflexed, base distinctly margined, front angles broadly rounded, hind angles obtuse slightly rounded. Elytra elongate-oval very convex, but little wider than the prothorax, rather strongly margined at the sides, striæ fine, scarcely punctured; interspaces flat, slightly rugose and punctulate. Scutel finely punctured. Beneath punctured, flanks of prothorax densely not coarsely aciculate. Antennæ extending beyond the base of the prothorax, outer joints not compressed. Length, 6.5^{mm}.

Veta Pass. The tarsi are scarcely dilated in any of the specimens I have examined. This species is allied to *convexulus* Lec., but the prothorax is of a different form, with distinctly defined hind angles.

TETRATOMA CONCOLOR.—Elongate-oval, convex, finely and sparsely pubescent, piceous shining, with a reddish tinge, base of antennæ and legs yellowish brown. Head more finely punctured. Prothorax and elytra equally punctured; the former transverse, narrower in front, rounded on the sides, which are narrowly margined; base margined like the sides, with a large puncture half way between the middle and the basal angles, which are obtuse and rounded. Length, 4^{mm}.

Veta Pass.

CRYPHALUS MUCRONATUS.—Elongate, cylindrical, black, opaque, covered with fine pruinose pubescence, and with scattered short, stout white bristles. Prothorax rounded on the sides, not longer than wide, obliquely rounded at the tip, which is mucronate on the margin with two approximate curved spines; surface in front of the middle with scattered acute tubercles. Elytra with striæ not impressed, composed of quadrate shallow punctures. Length, 1.4^{mm}.

Veta Pass; one specimen. Resembles closely the European *C. tiliæ*, but is larger and more elongate, with the sides of the prothorax more rounded. The sutures of the antennal club are straight.

XYLOCLEPTES CUCURBITÆ.—Slender, cylindrical, black, rather shining, villous with long, sparse, fine, erect yellow hairs. Head finely granulate, flat. Prothorax longer than wide, oval, very slightly wider behind, densely punctato-granulate, granules flat. Elytra densely and coarsely rugosely punctured; punctures arranged slightly in rows, declivity oblique, not retuse or sharply defined. Antennæ and legs ferruginous. Length, 2^{mm}.

Utah, on wild gourd; sent to me by Dr. H. A. Hagen. The antennal club on the outer face has a smooth oval spot at the base; the sutures are indistinct and nearly concentric with the sides and distal end of this spot, as in the European *X. bispinus*, to which, otherwise, this and *X. decipiens* Lec. bear no resemblance.

PITYOPHTHORUS DELETUS.—Cylindrical, slender, shining black or brown, nearly glabrous, with a few fine hairs near the sides and upon the prothorax; head sparsely fringed with long hairs, front flat, sparsely punctured. Prothorax not wider than long, a little wider behind, sparsely punctured, with a few distant acute reclinate tubercles arranged in transverse rows; two are upon the apical margin. Elytra with very fine, nearly effaced rows of small punctures more distinct near the base; declivity smooth retuse, impressed near the suture. Antennæ and legs ferruginous. Length, 12^{mm}.

Veta Pass, Colo. Five specimens examined show no sexual differences, and are probably all females. This species may be placed near *annèctens* Lec. Pr. Am. Phil. Soc. 1878, 622, from Florida, but is quite different, and easily recognized by the characters given above.

SCOLYTUS UNISPINOSUS.—I refer to this Oregon species, heretofore represented by but two ♂, a ♀ found at Veta Pass, which differs by the head moderately convex and punctured, and the compressed spine of the ventral declivity replaced by a short compressed tubercle at the apical margin of the second segment. The specimen referred to by me from Lake Superior (Pr. Am. Phil. Soc. 1878, 626) as probably belonging to this species, has the tubercle on the face of the second ventral segment not compressed and not extending to the apical margin. It is, perhaps, a different species, but in the absence of ♂ specimens cannot be properly described.

PHLŒOTRIBUS PUBERULUS.—Cylindrical, black, nearly opaque, clothed with fine erect yellowish pubescence; base of antennæ and tarsi piceous. Head sparsely finely punctured; front nearly smooth, shining, broadly concave, with two small acute cusps on the epistoma. Prothorax wider than long, sides oblique slightly rounded, coarsely punctured, dorsal line obsolete, visible only near the middle. Elytra with shallow striæ, formed of quadrate punctures, interspaces somewhat elevated, not wider than the striæ, with the hairs arranged in rows. Length, 2.5$^{\mathrm{mm}}$.

Veta Pass; one specimen. This species resembles in appearance *Hylesinus opaculus*, but is quite different in characters. The joints of the antennæ are less prolonged than in the other species, so that the club becomes elongate-oval, and as long as the remaining joints united.

DEPARTMENT OF THE INTERIOR.
UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY.
F. V. HAYDEN, U. S. GEOLOGIST-IN-CHARGE.

BULLETIN

OF

THE UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY

OF

THE TERRITORIES.

VOLUME V.....NUMBER 4.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
September 30, 1880.

BULLETIN

OF THE

UNITED STATES GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

VOLUME V. 1879. NUMBER 4.

Art. XXVI.—Third Instalment of American Ornithological Bibliography.

By Dr. Elliott Coues, U. S. A.

The Appendix to the Birds of the Colorado Valley (pp. 567[1]–784[218]), which gives the titles of "Faunal Publications" relating to North America, is to be considered as the *first* instalment of this work.

The *second* instalment occupies pp. 239–330 of this Bulletin, this Vol., No. 2, and similarly gives the titles of "Faunal Publications", being those relating to the rest of America.

These two instalments represent all that I am at present prepared to publish of titles of this kind, *i. e.*, in "regional" Ornithology.

This present, *third* instalment consists of an entirely different set of titles, namely, those belonging to the "systematic" department of the whole Bibliography.

In this department come the titles of all publications treating of particular species, genera, or families of Birds, sytematically arranged *by Families*, in chronological order under each family, with alphabetization of authors' names under each date. The lot of titles herewith presented, however, are only those that relate to *American* species. Of those families which are exclusively American, as, for example, *Mniotiltidæ*, *Icteridæ*, *Tanagridæ*, *Trochilidæ*, etc., I give, of course, all the titles in my possession; but of those families which are more cosmopolitan, as the *Turdidæ* or *Fringillidæ*, I select only the titles relating to American species; and of extra-limital families no titles whatever are given. Such is the ostensible scope of the present instalment; but I actually give many titles relating to extra-limital species, when the close relationship of such species makes it desirable, or when the insertion of a few such additional titles enables me to present all those that I possess of certain families.

The three instalments together represent a nearly complete Bibliography of Ornithology so far as *America* is concerned. They are published in this manner in advance of the whole work for several reasons—among others, both to render immediately available certain departments of the Bibliography which are practically completed, and to invite criticism and suggestions for the bettering of the work. I am satisfied that, if I can come anywhere near the standard I have set for myself, I shall have done a very useful thing; and I beg those who are interested in the accomplishment of this undertaking to inform me of any defects they may perceive. In only one particular would I deprecate criticism at present—and this is respecting the *arrangement* of the titles; for the scheme of the work cannot be fairly appreciated until the whole is published, including the several contemplated Indexes.

The portions of the Bibliography now before the public suffice for an estimate of its plan and purpose; but I may add that nothing has yet appeared of several other important departments, such as those of "General and Miscellaneous" publications, of publications in "Anatomy and Physiology", of publications relating to "Birds in Domestication or Captivity", etc. It is not my intention, however, to print any more of the work at present, the *American* departments being the only ones sufficiently perfected to warrant their leaving my hands. But meanwhile I am making manuscript for the rest as rapidly and as continuously as possible.

NOTA BENE: It being absolutely necessary, in this part of the work, to have some fixed standard (no matter what one) for the grouping of species and genera into families, and for the sequence of the families, I have adopted as most convenient the arrangement of *Gray's* HAND-LIST, as far as the *Passeres* are concerned—the limitations of the families in other orders being sufficiently nearly agreed upon by ornithologists. *For Passerine families, then, the titles have been assorted strictly and exactly according to the composition and sequence of those groups in the work just mentioned.*

Hirundinidæ.

[Here only titles additional to those given in "Birds of the Colorado Valley", pp. 378–389, 396–401, *q. v.*]

1769. LAXMANN, E. Hirundo daurica, area temporali rubra, Uropygio luteo rufescente. < *Köngl. Svensk. Vetensk.-Acad. Handl.*, xxx, 1769, pp. 209–213, pl. vii.

1774. WHITE, G. Account of the House Martin, or Martlet. < *Philos. Trans.*, lxiv, pt. i, 1774, pp. 196–201.

Habits of *Chelidon urbica.*

This celebrated memoir is curiously misquoted in Carus and Engelmann, *Bibl. Zool.*, ii, 1861, p. 1375, as if referring to the mammal *Mustela foina*, known as the "Marten". Gill and Coues perpetuate the blunder in *Monogrs. N. A. Rodentia*, 1877, App., p. 1005, by transcription of the title into their *Bibl. of N. A. Mammals.* Coues exaggerated it in his *Fur-bearing Animals*, 1877, p. 77, by making out *Mustela foina* to have been instituted by Gilbert White, as above! The funny mistake is shown up by Alston, *P. Z. S.*, 1879, p. 469. The title is correctly cited by Coues in *Birds Colorado Valley*, 1878, p. 396; as it is also by Giebel, *Thes. Orn.*, p. 145.—It is hard to teach some people to verify quotations!

On the same page of Carus and Engelmann, 6 lines higher up, occurs a no less singular mistake: John Hunter's account of the "Free Martin" (a local name for cattle with a certain malformation) being cited as if relating to some species of *Mustela.* Again, on p. 1345, same work, a paper on the anatomy "of a *male* Otter", *Lutræ maris* (in the genitive), is allocated with *Enhydris*, as if it were *Lutræ maris*, "of a *Sea* Otter".

1789. CARLSON, G. V. Anmärkningar om Svalor. < *Kongl. Vetensk.-Acad. Nyt Handl.*, x, 1789, pp. 315–317.

1809. Reeve, H. An | Essay | on | the Torpidity | of | Animals. | By Henry Reeve, M. D. | Member of the Royal College of Physicians of | London, and Fellow of the Linnæan Society. | — | [Quotation.] | — | London: | Printed for Longman, Hurst, Rees, and Orme, | Paternoster Row, | by Richard Taylor & Co. Shoe Lane. | — | 1809. 1 vol. 8vo. pp. iii–viii, 1–152.

P. 39. "Here a curious question arises respecting the disappearance of birds." And the author goes on to discuss the alleged hibernation of Swallows. Cf. *Philos. Mag.*, xxxv, 1810, p. 241.

1813. Forster, T. Observations | on the | Brvmal Retreat | of the Swallow. | — | To which is annexed | a copiovs Index | to many passages relating to this bird, | in the works of ancient and modern authors. | — | By | Thomas Forster, F. L. S. | Author of | "Researches about atmospheric Phaenomena," etc. | — | Third edition, corrected and enlarged. | — | London: | Printed by J. Moyes, Greville Street, Hatton Garden; | for Thomas Underwood, 32, Fleet Street, | and 40 West Smithfield. | — | 1813. 8vo. pp. i–xiv, 1–46.

See other editions, of 1814 and 1817.

1814. Forster, T. Observations | on the | brvmal retreat | of the | Swallow. | — | To which is annexed | a copiovs index | to many passages relating to this bird, | in the works of ancient and modern authors. | — | By Thomas Forster, F. L. S. | Author of [etc.] | — | Fourth Edition, corrected and enlarged. | [This Edition is not published separately.] | 1814. < *The Pamphleteer*, iv, 1814, pp. 431–462.

This and two others are the only editions I have been able to lay hands on, of this rather notable paper; as stated in the title, the present edition is not issued separately. I give eds. of 1813 and 1817, and find another quoted of 1817. In the present, the author alludes to three earlier editions. The treatise in its present shape seems to be materially modified, with a new preface; besides which, it consists of the original (?) preface, pp. 433–438, observations, etc., 439–454, appendix, 455–459, giving first and latest appearance of Swallows near London for several years; and of index, 460–462, of passages relating to history of the Swallow in various works, ancient and modern, and the names of Swallows in many different languages. (He derives Swallow, as usual, from A. S. *swelgan*, to swallow, and says the Greek "is supposed to have come either from χεῖλη δονεῖν *quod scil.* labia agitet, vel quod χείλεσιν ᾄδει labiis canit"—in which he differs from other authority. The latin supposititious derivation, ab *hærendo*, from the adhesive nests, seems to me very far-fetched.) Cf. *Birds Col. Vall.*, i, 1878, pp. 369–371.

1816? Anon. The | Swallows: | or, | Observations & Reflections | upon | Their Late Assemblage | at Rotherham, | and their | subsequent departure. | — | [Quotation, 4 lines.] | — | Albion Press: | Printed and Sold by T. Crookes, Rotherham; | sold also by [etc. 3 lines]. [n. d. 1816?] 1 vol. 16mo. pp. i–viii, 9–38.

Anonymous: preface dated Clifton Cottage, Dec. 1815.—A sermon by a clergyman to his parishioners, on the wisdom and goodness of God as illustrated by the habits of *Hirundinidæ.*

1817. Forster, T. Observations | on the | Brvmal Retreat | of the | Swallow; | with | a copiovs reference | to passages relating | to this subject, | in different authors. | — | By Thomas Forster, F. L. S. | [etc.] | — | Fifth Edition. | — | London: | Printed by J. Moyes, Greville Street; | for Thomas and George Underwood, | 32, Fleet street. | — | 1817. 8vo. pp. i–xiv, 1–46.

Substantially the same as, if not identical with, the 4th ed., published in *The Pamphleteer*, iv, 1814, pp. 431–462, *q. v.*

"I do not mean to say that swallows may not have occasionally been found under water; for it is well known that they have; . . . but I should certainly attribute their being found in such situations to mere accident; . . . they have sometimes been taken out of the water, in winter, in a torpid state, . . . they have likewise been found concealed in the crevices of rocks, in holes in old decayed trees, in old ruined towers, and under the thatch of houses."

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Cf. *Birds of the Colorado Valley*, i, 1878, p. 450.

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38 species and 7 genera are treated very fully under two subfamilies, *Psalidoprocninæ*, 1 gen., 4 spp., and *Hirundininæ*, 6 genn., 34 spp. Characters, synonymy, distribution, are presented, with some account of habits and much criticism. *Atticora obscura* Temm. is identi-

1870. SHARPE, R. B.—Continued.
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Erroneous information from R. Haymond; the species being *Stelgidopteryx serripennis*.

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Biographical sketch, "by permission, from advance sheets of the 'Birds of the Colorado Valley', vol. i."

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7 genn. (with numerous subgenn)., 44 spp.—*Cyanodacnis*, p. 268; *Polidacnis*, p. 269; *Eudacnis*, *Atelcodacnis*, p. 270; *Hemidacnis*, p. 271; *Tephrodiglossa*, p. 273; *Pyrrhodiglossa*, *Cyanodiglossa*, *Melanodiglossa*, p. 274, subgenn. nn. *Chlorophanes cærulescens*, *C. melanops*, p. 269, subspp. nn. The matter is descriptive and critical, with some synonymy.

1864. Lawrence, G. N. Descriptions of New Species of Birds of the Families Caerebidæ, Tanagridæ, Icteridæ, and Scolopacidæ. < *Proc. Acad. Nat. Sci. Phila.*, xvi, 1864, pp. 106–108.

Dacnis ultramarina, p. 106.

1870. Sundevall, C. J. Öfversigt af slägtet Certhiola. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1869, 1870, pp. 619–625.

I. Speculo alarum albo ornatæ. *a*) Uropygio pure flavo. 1. *flaveola*, 2.? *bairdii*, 3. S:ti Thomæ, 4. ex Minas Geraes, 5. *luteola*, 6. *major*, 7. *columbiana*, 8. *minor*. *b*) Plaga uropygii virescente, indefinita. 9. *bartholemica*, 10. *portoricensis*, 11. *mexicana*, 12. *peruviana*. II. Speculo alari nullo. *a*) Plaga uropygii virescente, indefinita. 13. ex insula S:t Croix, 14. *dominicana*, 15. *chloropyga*, 16.? *guianensis*, 17. *majuscula*, 18. *albigula*, 19.? *bahamensis*. *b*) Plaga uropygii lata, definita, pure flava. 20. *minima*.

1871. Finsch, O. Monographie der Gattung Certhiola. < *Verh.* (*Abh.*) *k.-k. zool.-bot. Ges. Wien*, xxi, 1871, pp. 739–790, pl. iv.

This is a very complete and workmanlike monograph, in which, after general considerations and an account of the genus, the ten species recognized by the author are treated at full length, with copious synonymy, description, and criticism. Finsch recognizes *CC. bahamensis*, *flaveola*, *portoricensis*, *bartholemica*, *luteola*, *clusiae* (v. Würt., sp. n.), *mexicana*, *chloropyga*, *dominicana*, *martinicana*, as valid, with *C. minor* Bp., *Muscicapa melanoxantha* Sparrm., and *Certhia trochlea* Sparrm., as dubious, and adds a note on *Certhiola caboti* Bd. MS. A map shows the geographical distribution of the species.

1871. [Saussure, H. de.] Les Diglosas [Cœrebidæ]. < *La Naturaleza*, ii, 1871, pp. 28, 29.

Sobre las costumbres.

1873. Berlepsch, H. [Arten des Genus Dacnis.] < *J. f. O.*, 1873, pp. 68–70.

5 subgenn., 12 spp.

1873. Cabanis, J. [Ueber Xenodacnis parina, gen. sp. n., des Berliner Museums, von C. Jelski in Peru entdeckt.] < *J. f. O.*, 1873, pp. 311, 312, pl. iv, f. 1, 2.

1875. Sclater, P. L. Synopsis of the Species of the Subfamily Diglossinæ. < *Ibis*, 3d ser., v, 1875, pp. 204–221, pll. iv, v.

Chars., syns., hab., and criticism of 15 spp. *Diglossa*, 1 sp. *Diglossopsis*. Pl. iv, *Diglossa pectoralis*; pl. v, *D. albilateralis* ♂ ♀.

1878. Anon. Poaching Birds. < *The Country*, ii, June 1, 1878, p. 89.

Ingenuity of *Certhiolæ*, etc., in procuring food. From *Nature*.

Anabatidæ.

[The genus *Sitta* is ranged in this family by Gray, and I give all the titles I possess relating to it.]

1819–21? LICHTENSTEIN, H. Ueber die Gattung Dendrocolaptes. <*Abhandl. Berlin. Akad.*, 1818–19, Phys. Klasse, pp. 197–210; 1820–21, pp. 258–266, pll.

I have not seen this, the original edition of the memoir, which, however, reappears in a manner in *Isis*, 1824, pp. 615–619, *q. v.*

1824. LICHTENSTEIN, H. [Ueber die Gattung Dendrocolaptes.] <*Oken's Isis*, Jahrg. viii, 1824, pp. 613–619.

Auszug aus *Abh. k. Acad. Wiss. Berlin* für die Jahre 1818 und 1819, pp. 197–210. In dem Bande für 1820 und 1821 lieferte der Verfasser eine Fortsetzung. *D. decumanus*, *squamatus*, *bivittatus*, *erythacus*, spp. nn.—Der Verfasser ordnet nun 18 Arten, mit Synonymik, Diagnostik und Lokale.

1829. BREE, W. T. Nuthatch. <*Loudon's Mag. Nat. Hist.*, ii, 1829, p. 243, fig. 69.

On the habits of *Sitta europœa.*

1829. "H. S." On the Manners of the Nuthatch [Sitta europæa]. By H. S. With a Note by W. Swainson, F. R. S., &c. <*Loudon's Mag. Nat. Hist.*, i, 1829, pp. 328–330, figg. 162, 163.

1831. BREE, W. T. The Nuthatch [Sitta europæa] in the Neighbourhood of Bedford. <*Loudon's Mag. Nat. Hist.*, iv, 1831, p. 275.

1831. WHITE, W. H. The Nuthatch (Sitta europæa.) <*Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 465, 466.

Habits and nidification.

1832. "J. D[ENSON?]." The Nuthatch, Sitta europæa, L. <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 591.

1832. LAFRESNAYE, F. DE. Anabate. Anabates. Temm. <*Guér. Mag. de Zool.*, 2e année, 1832, classe ii, notice viii, pl. 8.

Anabates aradoïdes, pl. viii, sp. n.

1832. NEWMAN, E. The Nuthatch (Sitta europæa L.) is resident throughout the Year [in various parts of England]. <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 488, fig. 97, with notes by "J. D[enson?].", pp. 488, 489, and "J. M.", p. 489.

1833. LAFRESNAYE, F. DE. Sur le Fourmilier a long Bec. Cuv. Gal. du Muséum. <*Guér. Mag. de Zool.*, 3e année, 1833, classe ii, notice x, pl. x.

Myothera longirostris Cuv. = *Thamnophilus caudacutus* V. = *Myothera caudacuta* Lafr., pl. 10. (The species belongs to the genus *Sclerurus.*)

1833. LAFRESNAYE, F. DE. Picucule. Dendrocolaptes. Herm. P. rubigineux. D. rubiginosus. De Lafresnaye. <*Guér. Mag. de Zool.*, 3e année, 1833, classe ii, notice xvi, pl. xvi.

1833. LAFRESNAYE, F. DE. Picucule. Dendrocolaptes. Herm. P. a bec en coin. D. cuneatus. Licht. Catal. p. 17. <*Guér. Mag. de Zool.*, 3e année, 1833, classe ii, notice xvii, pl. xvii.

1837. S[ELBY], P. J. Sitta europea [in Cornwall]. <*Mag. of Zool. and Bot.*, i, 1837, p. 103.

1838. SIEMUSZOWA-PIETRUSKI, S. K. V. Nutzen der Spechtmeise (Sitta europæa), durch die Vertilgung der Borkenkäfer beobachtet . . . <*Arch. f. Naturg.*, 1838, (1), p. 48.

1842. LAFRESNAYE, [F.] DE. G. Acanthisitte. Acanthisitta. De Lafr. <*Guér. Mag. de Zool.*, 2e sér., année 1842, Oiseaux, pp. 1, 2, pl. 27.

Acanthisitta g. n. = *Acanthisa* (*tenuirostris*), *Rev. Zool.*, 1841, p. 242.

1843. ATKINSON, J. C. Note on the Habits of the Nuthatch [Sitta europæa]. <*Zoologist*, i, 1843, pp. 213–215.

1843. Lafresnaye, [F.] de. G. Picucule. Dendrocolaptes. Cuvier. P. a taches triangulaires. D. triangularis. De Lafr., Rev. Zool., 1842, p. 134. <*Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 32.

1843. Ross, H. J. [Occurrence of Sitta europæa at Kaipariah.] <*P. Z. S.*, xi, 1843, p. 122.

1844. Lafresnaye, [F.] de. G. Dendrocolaptes. D. Perrotii. Lafresnaye. <*Guér. Mag. de Zool.*, 2e sér., année 1844, Oiseaux, pp. 1, 2, pl. 54.

Rev. Zool., 1844, p. 80.

1846. Mosley, O. Remarks on the Nuthatch [Sitta europæa]. <*Zoologist*, iv, 1846, pp. 1498, 1499.

1847. Lafresnaye, F. de. [Notice du genre Dendrocolaptes, à propos de la monographie dont il nous donne l'avertissement.] <*Revue Zoologique*, x, 1847, pp. 209–211.

1849. Lafresnaye, F. de. Monographie du genre Dendrocolaptes. <*Rev. et Mag. Zool.*, i, 1849, pp. 328–331.

Ici seulement l'aperçu général du sujet. Voir *op. cit.*, ii, 1850, et iii, 1851.

1850. [Jardine, W.] Synallaxis flammulatus, Jard. [n. sp.] <*Jard. Contrib. Orn.*, 1850, p. 82, pl. lvi.

1850–51. Lafresnaye, F. de. Essai d'une monographie du genre Picucule (Buffon), Dendrocolaptes (Hermann, Illiger), devenu aujourd'hui la sous-famille Dendrocolaptinæ (Gray, Genera of birds), de la famille Certhiadæ de Swains. <*Rev. et Mag. Zool.*, ii, 1850, pp. 95–104, 145–154, 275–285, 369–388, 417–426, 588–598; iii, 1851, pp. 145–147, pl. 4, 317–329, 465–470, 590, 591.

Dendrocolaptes, 6 esp. *D. simpliciceps*, p. 100; *D. devillei*, p. 102, spp. nn.—*Picolaptes*, 11 esp. *P. lineaticeps*, p. 277, sp. n.—*Xiphorhynchus*, 5 esp. *X. procurvoides*, p. 376, sp. n.—*Nasica*, 14 esp. *N. guttatoides*, p. 387; *N. beauperthuysii*, p. 419; *N. dorbignyanus*, p. 420, spp. nn. ?—*Sittasomus*, 4 esp. *S. amazonus*, p. 590, sp. n. ?—*Glyphorhynchus*, 1 esp.—*Dendroplex*, 2 esp.—*Dendrocolaptes temminckii*, p. 145, pl. 4.—*Dendrocops*, 11 esp. *D. tyranninus*, p. 328; *D. meruloides*, p. 467, spp. nn.—*Dendrexetastes*, 1 esp.

1851. Eyton, T. C. Description of some New Species and a New Genus of Dendrocolaptinæ. <*Jard. Contrib. Orn.*, 1851, pp. 75–77.

Dendrocolaptes multistrigatus, *Picolaptes validirostris*, p. 75; *P. atripes*, *Dendrexetastes* (g. n.) *capitoides*, p. 76.

1851. Eyton, T. C. Descriptions of two New Species of Synalaxis [sic]. <*Jard. Contrib. Orn.*, 1851, p. 159, pl. lxxxi*.

S. olivaeens [sic], *S. modestus*.

1852. Eyton, T. C. Remarks on Dendrocolaptinæ, with descriptions of Two New Genera and Species. <*Jard. Contrib. Orn.*, 1852, pp. 21–26.

Drymornis, *Dendrornis*, p. 23, genn. nn. *Dendrocops olivaceus*, p. 25; *Picolaptes notatus*, p. 26, spp. nn.

1853. Lafresnaye, F. de. Mélanges Ornithologiques. <*Rev. et Mag. de Zool.*, v, Nov., 1853, pp. 490–493.

Sur l'*Anabates squamiger*, type d'un nouveau genre *Anabasitta*, p. 492.

1853. Sclater, P. L. On a new species of Dendrocolaptes [eytoni]. <*P. Z. S.*, xxi, 1853, pp. 68, 69, pl. (Aves) lvii.

1855. Sclater, P. L. On a [lately] new species of Dendrocolaptes [eytoni]. <*Ann. Mag. Nat. Hist.*, 2d ser., xv, 1855, pp. 223, 224.

From *P. Z. S.*, 1853, pp. 68, 69.

1856. Sclater, P. L. On some New or Imperfectly-known Species of Synallaxis. <*P. Z. S.*, xxiv, 1856, pp. 97–99.

3 spp. *S. spixi*, *S. caniceps*, p. 98, spp. nn. The third sp. is *S. ruficapilla* V.

1857. Antinori, O. Einige Bemerkungen über das Nest von Sitta syriaca. <*Naumannia*, vii, 1857, pp. 429–431.

1857. Hadfield, H. W. Note on the European Nuthatch (Sitta europæa). <*Zoologist*, xv, 1857, pp. 5684, 5685.

1857. SCLATER, P. L. On some New or Imperfectly-known Species of Synallaxis. <*Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 179–181.

From *P. Z. S.*, April 22, 1856, pp. 97–99, *q. v.*

1857. SCLATER, P. L. Further Additions to the List of Birds received in Collections from Bogota. <*P. Z. S.*, xxv, 1857, pp. 15–20.

The article is a briefly annotated list of 52 spp., among which two new *Anabatidæ* are described, namely, *Anabates striaticollis* and *Sclerurus brunneus*, p. 17.

1857. SCLATER, P. L. On two [lately] new Species of Birds from Bogota. <*Ann Mag. Nat. Hist.*, 2d ser., xx, 1857, p. 472.

Anabates striaticollis, *Sclerurus brunneus*, the descriptions of which are here extracted from a paper of wider scope in *P. Z. S.*, Jan. 27, 1857, pp. 15–20.

1859. PELZELN, A. v. Ueber neue Arten der Gattungen Synallaxis, Anabates und Xenops in der Kaiserlichen ornithologischen Sammlung, nebst Auszügen aus J. Natterer's nachgelassenen Notizen über die von ihm in Brasilien gesammelten Arten der Furnarinæ und Synallaxinæ. <*Sitzungsber. der Wien. Akad., math.-nat. Classe*, xxxiv, 1859, pp. 99–134.

Not seen.

1859. SCLATER, P. L. On some New Species of Synallaxis, and on the Geographical Distribution of the Genus. <*P. Z. S.*, xxvii, 1859, pp. 191–197.

S. pudica, *S. stictothorax*, *S. scutata*, p. 191, spp. nn. List of 41 spp., with localities, and mention of 18 others.

1859. SCLATER, P. L. On a [lately] new species of Synallaxis [antisiensis] from the Republic of Ecuador. <*Ann. Mag. Nat. Hist.*, 3d ser., iii, 1859, p. 448.

From *P. Z. S.*, Nov. 9, 1858, p. 457, where the species is named among others in a paper of more extended scope.

1860. HEINE, F. Beschreibung eines neuen Riesen-Baumhackers (Xiphocolaptes [fortis] Less.). <*J. f. O.*, viii, 1860, pp. 185, 186.

1860. REINHARDT, J. Notits om Slægten Malacurus Rchb. og de dertil hörende Arter. <*Vidensk. Meddel. Naturhist. Foren. Kjöbenhavn* 1859, 1860, pp. 103–105.

M. rufifrons (Ill.), *M. obsoletus*, sp. n., p. 105, *M. striaticeps* (d'Orb. et Lafr.) og *M. ruber* (Vieill.).

1860. SCLATER, P. L. On some [lately] New Species of Synallaxis. <*Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, p. 332.

From *P. Z. S.*, May 10, 1859, pp. 191–197, *q. v.*

1861. KRÜPER, T. Ueber Sitta syriaca in Griechenland. <*J. f. O.*, ix, 1861, pp. 129–132.

1863. NEWTON, A. On a New Bird from the Island of Madagascar [Hypherpes (n. g.) corallirostris]. <*P. Z. S.*, xxxi, 1863, p. 85, pl. xiii.

1864. PHILIPPI, R. A., *and* LANDBECK, L. De las Alondras [sc. Anabatidæ] Chilenas. <*Anal. Univ. Chile*, xxv, Set. de 1864, pp. 409–418.

A subtitle of a paper of more extended scope.—Six species are treated, among which *Certhilauda frobeni*, p. 411; *C. isabellina*, p. 412; and *Geobamon fasciatus*, p. 415, are described as new. The matter reappears in a German version in *Arch. f. Naturg.*, 1865, Bd. i, pp. 58–73, *q. v.*

1865. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. <*Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126–135.

The *Dendrocolaptidæ*=*Anabatidæ* here described are *Philydor rufobrunneus*, p. 127; *Anabazenops lineatus*, p. 127; *Margarornis rubiginosa*, *M. guttata*, p. 128; *M. brunneicauda* (proband.), p. 130.

1865. PHILIPPI, R. A., *and* LANDBECK, L. Die Lerchen [sc. Anabatidæ] Chiles. <*Arch. f. Naturg.*, 1865, Bd. i, pp. 58–73.

A subtitle of a paper having a more extended scope.—The birds treated are not Larks, or *Alaudidæ*, to which they have some superficial resemblance, but *Anabatidæ* of Gray's arrangement. They are six in number, namely: *Geositta cunicularia* (V.) Bp., *Certhilauda frobeni* P. & L., p. 62; *C. isabellina* P. & L., p. 63; *Geobamon rufipennis* Burm., *G. fasciata* P. & L., p. 68; *Certhilauda nigrofasciata* Lafr. Cf. *Zool. Rec.* for 1865, pp. 102, 103.—The article originally appeared in Spanish in *Anal. Univ. Chile*, xxv, 1864, pp. 409–418, *q. v.*

1865. Sclater, P. L. Notes on Krüper's Nuthatch and on the other known Species of the Genus Sitta. <*Ibis*, 2d ser., i, 1865, pp. 306–311, pl. vii.

12 spp., with critical, descriptive, and geographical annotation. The pl. represents *S. krueperi* (cf. *P. Z. S.*, 1864, p. 433). *S. aculeata* Cass. is disallowed.

1866. Sclater, P. L. Note on the Genus Geobates of Swainson. <*P. Z. S.*, Apr. 24, 1866, pp. 204, 205, pl. xxi.

The only known species, *Anthus pœcilopterus* Max., *Beitr.*, ii, p. 633, which = *Geobates brevicauda* Sw., *An. in Menag.*, 1838, p. 322, is described and figured, with extracts from Natterer's MS. concerning it, under the name of *Geobates pœcilopterus*. *Geobamon rufipennis* Burm. (*J. f. O.*, 1860, p. 465) "seems to be somewhat allied".

1867. Moor, A. C. Nesting of the Nuthatch [Sitta europæa]. <*Zoologist*, 2d ser., ii, 1867, pp. 559, 560.

1868. Clifton, *Lord.* Nuthatch in Ireland [Sitta europæa]. <*Zoologist*, 2d ser., iii, 1868, p. 1134.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New Species of Birds of the Families Dendrocolaptidæ, Strigidæ, and Columbidæ. <*P. Z. S.*, xxxvi, 1868, pp. 53–60, pl. v, woodcc.

Dendrocincla ruficeps, p. 54; *Dendrocolaptes puncticollis*, p. 54, pl. v, woodc.; synopses of these genera.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New or Little-known American Birds of the Families Fringillidæ, Oxyrhamphidæ, Bucconidæ, and Strigidæ. <*P. Z. S.*, xxxvi, 1868, pp. 322–329.

Oxyrhamphus frater, p. 326, sp. n.

1869. Sclater, P. L. On Two new Species of Synallaxinæ. <*P. Z. S.*, xxxvii, 1869, pp. 636, 637, pl. xlix.

Synallaxis curtata, p. 636, pl. fig. 1; *Leptasthenura andicola*, p. 636, pl. fig. 2.

1869. Sclater, P. L., *and* Salvin, O. Descriptions of Six New Species of American Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicariidæ, Tyrannidæ, and Scolopacidæ. <*P. Z. S.*, xxxvii, 1869, pp. 416–420, pl. xxviii.

Synallaxis arequipæ, p. 417.

1870. Gurney, J. H. Nest of a Nuthatch [Sitta europæa]. <*Zoologist*, 2d ser., v, 1870, p. 2224.

1871. Bond, F. Singular nesting of the Nuthatch [Sitta europæa] at East Grinstead, Sussex. <*Zoologist*, 2d ser., vi, 1871, pp. 2850, 2851.

1871. Sclater, P. L. Remarks on some Species of Dendrocolaptidæ in the Collection of the Smithsonian Institution. <*P. Z. S.*, xxxix, 1871, pp. 85, 86.

Critical observations on *Synallaxis candæi*, *Anabates ochrolæmus*, *A. montanus* (both of which are referred to *Philydor*), and *Dendrocolaptes chuncotambo* (= *Dendrornis ocellata*).

1872. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Icterus and Synallaxis. <*Ann. Lyc. Nat. Hist. N. Y.*, x, 1872, pp. 184–186.

The Anabatoid is *S. maculata*, p. 186, from Tumbe, Peru.

1872. Meyer, R. Ueber den Nestbau des Kleibers oder der Spechtmeise. (Sitta caesia Wolf.). <*Zool. Gart.*, xiii, 1872, pp. 238–241.

1874. Sclater, P. L. On the Species of the Genus Synallaxis of the Family Dendrocolaptidæ. <*P. Z. S.*, xlii, 1874, pp. 2–28, pll. ii, iii, iv.

Very full. Bibliographical summary. Synonymy, diagnosis, and criticism. 58 spp. + 4 spp. doubtful, in 2 sections, rectric. 10 or 12.—*S. hypospodia*, *S. subpudica*, p. 10; *S. hudsoni*, p. 25, spp. nn.—Pl. ii, f. 1, *S. stictothorax*; f. 2, *S. scutata*. Pl. iii, f. 1, *S. kollari*; f. 2, *S. candæi*. Pl. iv, f. 1, *S. subcristata*; f. 2, *S. hyposticta*.

1874. Sclater, P. L. Descriptions of three new Species of the Genus Synallaxis. <*P. Z. S.*, xlii, 1874, pp. 445–447, pl. lviii.

S. pudibunda, p. 445, pl. lviii, f. 1; *S. graminicola* Jelski, MS., p. 446, pl. f. 2; *S. virgata* Jelski, MS., p. 446.

1876. COUES, E. Letters on Ornithology. No. 8.—Nuthatches [Sitta]. < *The Chicago Field,* Dec. 16, 1876, figg. 2.

General account of the North American species, with figg. of the heads of *S. carolinensis* and of *S. pygmæa.*

1878. HARDY, MANLY. Nesting Habits of the Red-bellied Nuthatch [Sitta canadensis]. < *Bull. Nutt. Ornith. Club,* iii, No. 4, Oct., 1878, p. 196.

Good original observations on a subject none too well known before.

1879. DOWSE, W. B. The White-bellied Nuthatch [Sitta carolinensis] concealing Food. < *Bull. Nutt. Ornith. Club,* iv, No. 1, Jan., 1879, p. 61.

1879. [WILLARD, S. L.] [Field] Notes on Sitta canadensis. < *The Oölogist,* v, No. 2, Aug., 1879, p. 15.

1879. [WILLARD, S. L.] Nest of the White-bellied Nuthatch (Sitta carolinensis). < *The Oölogist,* iv, No. 9, Apr., 1879, p. 65.

Certhiidæ.

1782. Götz, G. F. Beytrag zur Naturgeschichte des Mauerspechts. Certhia [Tichodroma] muraria Linn. <*Der Naturforscher*, xvii, 1782, pp. 40–44.

1805. Bartram, W. Description of an American species of Certhia, or Creeper. <*Philadelphia Med. Phys. Journ.*, i, 1805, (pt. 2), pp. 103–106.
Not seen: title from *Roy. Soc. Cat.*

1831. White, W. H. The Tree Creeper (Certhia familiaris). <*Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 473, 474.

1832. Bree, W. T. The Tree Creeper (Certhia familiaris L.) a Winter Resident [in England]. <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 489, with note by "J. D.", pp. 489, 490.

1832. "M. P." The Creeper (Certhia familiaris L.) [resident in Great Britain]. <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 738.

1832. Newman, E. The Creeper (Certhia familiaris.) <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 204.

1832. "T. G." The Creeper (Certhia familiaris) resident, not migratory, in Lancashire. <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 204.

1832. "T. G." The Creeper (Certhia familiaris L.) it is, and not the Nuthatch (Sitta europæa L.), which associates with the Titmouse in winter, in Lancashire. <*Loudon's Mag. Nat. Hist.*, v, 1832, pp. 737, 738.

1832. Turner, H. The Creeper (Certhia familiaris.) <*Loudon's Mag. Nat. Hist.*, v, 1832, p. 204, with note by "J. D.", pp. 204, 205.

1847. Gray, G. R. On two new Genera of Certhinæ. <*P. Z. S.*, xv, 1847, pp. 6, 7.
Caulodromus gracei, gen. sp. n., p. 6, Darjeeling. *Salpornis*, g. n., p. 7, type *Certhia spilonota* Franklin, *P. Z. S.*, 1831, 121, Behar.

1847. Gray, G. R. On two [lately] new Genera of Certhinæ. <*Ann. Mag. Nat. Hist.*, xix, 1847, pp. 351–353.
From *P. Z. S.*, Feb. 23, 1847, pp. 6, 7, *q. v.*

1852. Bailly, [J. B.] Notice supplémentaire sur le Grimpereau Costa [Certhia costæ]. <*Bull. Soc. Hist. Nat. Savoie*, janv. 1852, pp. — – —.
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1852. Gerbe, Z. Notice sur la Certhia Costæ, Bailly, (Grimpereau Costa). <*Rev. et Mag. de Zool.*, 2e sér., iv, avril, 1852, pp. 162–172, pl. 8.
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Pteroptochidæ.

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Pl. 53, *Merulaxis orthonyx* Lafr., *R. Z.*, 1843, p. 131.

1851. [JARDINE, W.] Scytalopus, Gould, 1836. < *Jard. Contrib. Orn.*, 1851, pp. 115–118, pll. lxxvi–lxxviii.

Descriptions of, and remarks on, 4 spp. Pl. lxxvi, f. 1, *S. undulatus*; f. 2, *S. albiventris.* Pl. lxxvii, *S. fuscus.* Pl. lxxviii, *S. albogularis.*

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History of the group in brief; systematic, synonymatic, diagnostic synopsis, with comment, of 19 spp., referred to 8 genera; tabular view of their distribution. The pl. represents *Rhinocrypta fulva.*

Troglodytidæ.

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1836. GOULD, J. [Exhibition of Birds allied to the European Wren, with characters of new species.] <*P. Z. S.*, iv, 1836, pp. 88–90.

Troglodytes magellanicus, p. 88; *T. leucogastra*, *T. guttatus*, p. 89; *Scytalopus* (g. n.) *fuscus*, p. 89; *S. albogularis*, p. 90, spp. nn. (See *Pteroptochidæ*, 1836, 1837, 1838.)

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Sur le genre *Campylorhynchus* de Spix (1824), *Picolaptes* Lesson (1830).—*C. zonatoides*, p. 92; *C. pallescens*, *C. unicolor*, p. 93, spp. nn.; avec une liste de 11 espèces de ce genre.

1846. LAFRESNAYE, F. DE. Description d'une nouvelle espèce de Campylorhynche [Campylorhynchus unicoloroïdes] de la Bolivie. <*Revue Zoologique*, ix, 1846, pp. 316, 317.

1847. CABOT, S., JR. [Troglodytes albinucha, sp. n.] <*Proc. Bost. Soc. Nat. Hist.*, ii, Nov. 17, 1847, pp. 258, 259.

This is the orig. descr. of the species, not formally titled, but simply given at conclusion of a paper the full title of which will be found under *Laridæ*. (See 1848, CABOT, S., JR., *bis.*)

1847. GARNIER, —. [Nid du Troglodyte vulgaire contenant sept petits encore sans plumes, le 16 Décembre 1846.] <*Compt. Rend. de l'Acad. Sci. Paris*, xxiv, 1847, p. 79.

1847. GARNIER, —. Nidification du troglodyte (Troglodyta vulgaris) en hiver. <*Arch. des Sci. Phys. et Nat.*, iv, 1847, p. 222.

Extrait des *Comptes Rendus de l'Acad. Sci. Paris*, 18 janvier 1847.

1848. CABOT, S., JR. Troglodytes albinucha, a new species of Wren. <*Am. Journ. Sci.*, 2d ser., vi, 1848, p. 137.

Here given as a sub-head of a more extended title, from *Proc. Bost. Soc. Nat. Hist.*, ii, Nov. 17, 1847, pp. 257–259; but it is properly citable as a separate article, as it was in the original.

1848. CABOT, S., JR. A Comparison between Sterna Cantiaca, Gm., of Europe, and Sterna Acuflavida, Nobis, hitherto considered identical with S. cantiaca, and a description of a new species of Wren [Troglodytes albinucha]. <*Ann. Mag. Nat. Hist.*, 2d ser., ii, 1848, pp. 364, 365.

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1850. [Kirtland, J. P.] A Rare Bird [Thryothorus ludovicianus, in Ohio]. < *The Family Visitor*, i, No. 52, p. 412.

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1851. Norman, A. M. Nesting of the Wren (Troglodytes vulgaris). < *Zoologist*, ix, 1851, pp. 3207, 3208.

1852. Boenigk, O. v. [Troglodytes parvulus nistend.] < *Naumannia*, ii, Heft iii, 1852, pp. 81–84.

1852. Schach, F. [Fortpflanzung von Troglodytes domestica.] < *Naumannia*, ii, Heft ii, 1852, p. 123.

1854. Tobias, R. Beiträge zur Fortpflanzungsgeschichte des Zaunkönigs, Troglodytes parvulus, Koch. < *J. f. O.*, ii, 1854, pp. 281–284.

1856. Sclater, P. L. Characters of an apparently undescribed bird belonging to the genus Campylorhynchus [humilis], of Spix, with remarks upon other Species of the same group. < *Proc. Acad. Nat. Sci. Phila.*, viii, 1856, pp. 263–265.

Synopsis of 13 spp.

1856. Sclater, P. L. Note on Buglodytes albicilius, Bp. < *P. Z. S.*, xxiv, 1856, p. 97.

Identified with *Furnarius griseus* Sw., *An. in Menag.*, p. 325, which is the type of *Heleodytes* Cab.

1857. Beale, S. C. T. Note on the Common Wren [Troglodytes vulgaris]. < *Zoologist*, xv, 1857, p. 5516.

1857. Sclater, P. L. Note on Buglodytes albicilius, Bp. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, p. 179.

From *P. Z. S.*, April 22, 1856, p. 97, *q. v.*

1857. Smith, R. B. Nesting of the Wren [Troglodytes vulgaris]. < *Zoologist*, xv, 1857, p. 5791.

1861. Fischer, J. C. H. Der faröische Zaunkönig, Troglodytes borealis, n. sp. < *J. f. O.*, ix, 1861, pp. 14–16, Taf. "i" (*i. e.* ii).

Die Tafel stellt den Vogel mit seinen Eiern dar. Fig. 2, Eier von *T. europæus*.

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1862. Doubleday, H. Food of the Wren [Anorthura troglodytes]. < *Zoologist*, xx, 1862, p. 7881.

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1862. Saville, S. P. Further Notes on the Common Wren [Anorthura troglodytes]. < *Zoologist*, xx, 1862, pp. 7999, 8000.

1862. Trinthammer, W. H. Ein Curiosum in Betreff einer Nistweise [Anorthura troglodytes]. < *J. f. O.*, x, 1862, pp. 223, 224.

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1865. Neave, E. Early Wren's [Anorthura troglodytes] Nest [27 Dec.]. < *Zoologist*, xxiii, 1865, p. 9539.

1869. Hill, M. S. The House Wren. < *Am. Nat.*, iii, 1869, 49.

Note on the mischievousness of *Troglodytes aëdon* [= *domestica* Bartr.].

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1869. Sclater, P. L. Description of a new Species of Mexican Wren [Thryothorus nisorius]. < *P. Z. S.*, xxxvii, 1869, pp. 591, 592, pl. xlv.

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1872. GIZYCKI, —. [Troglodytes parvulus im Käfig nistend.] <*J. f. O.*, xx, 1872, p. 317.

1873. T[RIPPE], T. M. Occurrence of the Rock Wren [Salpinctes obsoletus] in Iowa. <*Am. Nat.*, vii, 1873, p. 566.

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1874. WALDEN, *Lord*. [Proposes for Troglodytes punctatus Blyth nec Brehm, the name of T. formosus.] <*Ibis*, 3d ser., iv, 1874, p. 91.

1875. RIDGWAY, R. Description of a New Wren [Thryothorus ludovicianus var. miamensis] from Eastern Florida. <*Am. Nat.*, ix, No. 8, Aug.. 1875, pp. 469, 470.

1875. SWINHOE, R. [On the identity of Troglodytes alascensis Baird with T. fumigatus Temm.] <*Ibis*, 3d ser., v, 1875, pp. 143, 144.

1876. ABBOTT, C. C. Bewick's Wren (Thryothorus Bewicki). <*Am. Nat.*, x, No. 4, 1876, pp. 237, 238.

Note of its considerable numbers in New Jersey.

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1876. COUES, E. [Bewick's Wren, Thryothorus bewicki, breeding in Virginia.] <*Am. Nat.*, x, No. 1, 1876, p. 48.

1876. COUES. E. Tarsal Envelope in Campylorhynchus and allied genera. <*Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, pp. 50, 51.

Verifying the statements of S. F. Baird (*Rev. Am. Birds*, 1864, p. 109) respecting the tarsal envelope of *Salpinctes*, and extending observations to *Campylorhynchus*, finding that in the latter "the lateral plates, but especially the outer one, are broken up into a series of conspicuous scutella; and that *Catherpes* shows a tendency, not so fully expressed, to similar division of the tarsal envelope". In the tarsus of a species of *Thamnophilus*, a typical Formicarian, "the plates are divided behind, and the general structure is substantially the same as in *Salpinctes*". The question of the systematic position of these genera is thus raised. "These points may not suffice for the summary dismissal of the genera under consideration from the *Troglodytidæ*, but they go to show that their position in that family is not assured."

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Popular biographical notices of these two species, with figures of their heads.

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1877. FRAZER, A. W. Persistency at Nest-Building in a House Wren [Troglodytes domestica Bartr.]. <*Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 78.

1877. [SCOTT, W. E. D.] Notes on Habits of the Long-billed Marsh Wrens [Telmatodytes palustris]. <*The Country*, i, Nov. 17, 1877, p. 43.

1878. **Brewer, T. M.** The Carolina Wren [Thryothorus ludovicianus] in Massachusetts. <*Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 193.

1878. **King, F. H.** The Winter Wren [Anorthura troglodytes hyemalis] breeding in Southern New York. <*Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 194, 195.

1878. **Ridgway, R.** Description of a new Wren [Thryothorus felix, β. lawrencii] from the Tres Marias Islands. <*Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 10, 11.

1879. **Bicknell, E. P.** The Carolina Wren [Thryothorus ludovicianus] breeding in New York. <*Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 183, 184.

1879. **Deane, R.** Breeding of the Winter Wren [Anorthura troglodytes hyemalis] at Houlton, M[ain]e. <*Bull. Nutt. Ornith. Club*, iv, No. 1, 1879, pp. 37–39.

Three cases fully described.

1879. **Deane, R.** The Great Carolina Wren [Thryothorus ludovicianus] breeding on Long Island, N. Y. <*Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, p. 184.

1879. **Purdie, H. A.** The Great Carolina Wren [Thryothorus ludovicianus] in Connecticut. <*Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, p. 61.

Lusciniidæ.

[Includes *Saxicola*, *Sialia*, and *Regulus*.]

1834. Couch, J. The Habits of the Wheatear (Motacilla [Saxicola] Œnanthe). <*Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 466, 467.

1846. Reece, G. Singular variety of the Wheatear (Motacilla [Saxicola] Œnanthe). <*Zoologist*, iv, 1846, p. 1496.

1848. Hussey, A. Note on the Wheatears (Sylvia [Saxicola] Œnanthe). <*Zoologist*, vi, 1848, p. 2298.

1849. Thorncroft, T. Arrival of the Wheatear (Sylvia [Saxicola] Œnanthe) at Brighton. <*Zoologist*, vii, 1849, p. 2412.

1850. Gurney, J. H. Note on a [albinotic] Variety of the Wheatear (Sylvia [Saxicola] Œnanthe). <*Zoologist*, viii, 1850, p. 2923.

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1863. Saville, S. P. A Word for the Stonechat [Saxicola œnanthe]. <*Zoologist*, xxi, 1863, p. 8819.

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1864. Dutton, J. Wheatear [Saxicola œnanthe] near Eastbourne in March. <*Zoologist*, xxii, 1864, p. 9041.

1864. Harting, J. E. Wheatears [Saxicola œnanthe] in March. <*Zoologist*, xxii, 1864, p. 9108.

1864. Harvie-Brown, J. A. Early Appearance of the Wheatear [Saxicola œnanthe]. <*Zoologist*, xxii, 1864, p. 9108.

1864. Pamplin, W. Wheatears [Saxicola œnanthe] in March [in North Wales]. <*Zoologist*, xxii, 1864, p. 9041.

1865. Gunn, T. E. The Stonechat [Saxicola œnanthe] and Winchat [S. rubetra] Winter Residents in Norfolk. <*Zoologist*, xxiii, 1865, pp. 9455, 9456.

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1869. Haldeman, S. S. Citation of Authorities. <*Am. Nat.*, iii, 1869, p. 159.
Claims the name *Sialia sialis*, usually accredited to S. F. Baird.

1869. Ingersoll, E. Variation in Bluebirds' [Sialia sialis] Eggs. <*Am. Nat.*, iii, 1869, pp. 391, 392.
White eggs of this species.

1869. Wonfor, T. W. Variety of the Wheatear [Saxicola œnanthe]. <*Zoologist*, 2d ser., iv, 1869, p. 1918.

1870. ALLEN, J. A. The Ruby-crowned Kinglet [Regulus calendula]. <*Am. Nat.*, iv, 1870, p. 54.

With reference to possession of scarlet on the crown by ♀ of this species.

1870. COUES, E. The Ruby-crowned Wren [Regulus calendula]. <*Am. Nat.*, iv, 1870, p. 316.

Replies to J. A. Allen (*tom. cit.*, 54) that this species ♀ is "ruby-crowned" like the ♂.

1870. DALL, W. H. The Ruby Crowned Kinglet [Regulus calendula]. <*Am. Nat.*, iv, 1870, pp. 376, 377.

Note on *Regulus calendula* ♂, and on certain *Anatinæ*.

1870. GATCOMBE, J. Early Appearance of the Wheatear [Saxicola œnanthe]. <*Zoologist*, 2d ser., v, 1870, p. 2100.

1871. TRISTRAM, H. B. Notes on Sylviads. <*Ann. Mag. Nat. Hist.*, 4th ser., viii, 1871, pp. 28, 29.

Treats of 4 spp.—*Phyllopneuste major*, p. 29, sp. n.

1871. TRISTRAM, H. B. [Critical notes on certain Sylviidæ.] <*Ibis*, 3d ser., i, 1871, pp. 109, 110.

Phyllopneuste schwartzi Radde = *P. viridanus* Blyth = *Abrornis tenuiceps* Hodgs.—*P. eversmanni* Midd. = *P. sylvicultrix* Swinh., which latter stands, unless, as is probable, it = *P. borealis* Blas.—*P. eversmanni* Bp. is totally distinct, and = *icterina* Eversm.—Of three species confounded under the name of *P. fuscatus* Blyth, one = *P. siberica* Midd.; another is *P. maackii* Schr.; the third is not determined.

1874. ABBOTT, C. C. The Kinglets [Regulus] of New Jersey. <*Am. Nat.*, viii, 1874, pp. 364, 365.

Field-notes on *Regulus satrapa* and *R. calendula*.

1874. BREWER, T. M. The Kinglets [Regulus] in New Jersey. <*Am. Nat.*, viii, 1874, pp. 502–503.

Controversial; ref. to C. C. Abbott, *tom. cit.*, 364.

1874. BLANFORD, W. T., *and* DRESSER, H. E. Monograph of the Genus Saxicola, Bechstein. <*P. Z. S.*, xlii, 1874, pp. 213–241, pll. xxxvi–xxxix, woodcc.

A very timely and desirable article. The genus includes *Dromolœa* and *Campicola*. 69 current spp. reduced to 37. *S. griseiceps*, p. 233, pl. xxxvii, f. 3; *S. diluta*, p. 234, pl. xxxix, f. 1, spp. nn. A nearly complete synonymy, representing numerous important rectifications, with full description and habitat of all the spp. Pl. 36, f. 1, *S. bottæ*; f. 2, *S. heuglini*; pl. xxxvii, f. 1, 2, *S. leucomelæna*; pl. xxxviii, f. 1, *S. pollux*; f. 2, *S. castor*; pl. xxxix, f. 2, *S. schlegeli*.

1876. GILLMAN, H. The Bluebird [Sialia sialis] feeding on Ampelopsis. <*Am. Nat.*, x, No. 9, 1876, p. 556.

1876. INGERSOLL, E. Our present Knowledge of the Nidification of the American Kinglets [Regulus]. <*Bull. Nutt. Ornith. Club*, i, No. iv, Nov., 1876, pp. 77–79.

1877. CLIFTON, —. [Letter on the two distinct races of Saxicola œnanthe found in England.] <*Ibis*, 4th ser., i, Apr., 1877, pp. 256, 257.

1877. COLLETT, R. On Phylloscopus borealis and its Occurrence in Norway. <*P. Z. S.*, 1877, pp. 43–47.

1877. [COUES, E.] The Song that the Bluebird [Sialia sialis] sings. <*Harper's New Monthly Mag.*, May, 1877, p. 891.

Poem. Reprinted in *The Country*, Dec. 1, 1877, and elsewhere.

1877. INGERSOLL, E. Our present Knowledge of the Nidification of the American Kinglets [Regulus]. <*Forest and Stream*, viii, Feb. 22, 1877, p. 33.

Reprinted from *Bull. Nutt. Ornith. Club*, i, No. 4, Nov., 1876, pp. 77–79.

1877. [INGERSOLL, E.] Our present Knowledge of the Nidification of the American Kinglets [Regulus]. <*Oölogist*, ii, No. 11, 1877, pp. 75, 76.

From *Bull. Nutt. Ornith. Club*, i, No. 4, Nov., 1876, pp. 77–79.

1877. MEEHAN, T. The Bluebird [Sialia sialis] and Holly berries. <*Proc. Phila. Acad. Nat. Sci.*, 1877, p. 129.

1877. SEEBOHM, H. On the Phylloscopi or Willow-Warblers. <*Ibis*, 4th ser., i, Jan., 1877, pp. 66–108.

This is an important monography, treating of 32 spp. in due form, with copious synonymy, full description, geographical distribution, and critical comment.—These species are divided into the following sections: *Acanthopneuste* with 13 spp.; *Phylloscopus* proper with 15 spp., and *Reguloides* with 5 spp.; each of the former two subgenera being further analyzed into species of two groups, by pattern of coloration.—The American *Phyllopneuste kennicottii* Baird is referred to *Phylloscopus borealis* (Blas. = *eversmanni* Midd. nec Bp.).—*Phylloscopus gaetkei*, p. 92, sp. n. (= *major* Tristr. 1871, nec Forst. 1817).

1877. "VERD MONT ABROAD." Blue Birds [Sialia sialis].—New Haven [Conn.], Dec. 19th. <*Forest and Stream*, ix, Dec. 27, 1877, p. 397.

1878. EARLE, C. F. Sialia [sialis]: The story of a [captive] bluebird. <*Forest and Stream*, xi, Nov. 28, 1878, p. 339.

1878. [SCOTT, W. E. D.] Blue-Birds [Sialia sialis]. <*The Country*, i, March 16, 1878, p. 292.

1879. BREWER, T. M. Nest and Eggs of the Golden Crowned Kinglet (Regulus satrapa). <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 96–99.

Description of eggs from "an unknown nest", inferred to belong to this species, found by H. Merrill near Bangor, Me.; argument with the author of "Birds of the Colorado Valley" respecting general character of the nest; attention called by J. C. Merrill to the overlooked illustration of the egg in *J. f. O.*, 1856, p. 33, pl. 1, f. 8; attention called by J. A. Allen to overlooked account of nest in Minot's *B. New Engl.*, p. 56.

1879. BRYANT, W. E. The Arctic Bluebird [Sialia arctica] near San Francisco. <*Science News*, i, No. 9, Mar. 1, 1879, p. 144.

1879. MORRIS, R. H. A white Bluebird [Sialia sialis]. <*Forest and Stream*, xiii, Sept. 4, 1879, p. 605.

1879. "OBSERVER." A strange nesting place [of Sialia sialis—in a cannon]. <*Forest and Stream*, xii, July 17, 1879, p. 464.

Paridæ.

1845. Harris, E. Description of a new species of Parus [septentrionalis] from the Upper Missouri. <*Proc. Acad. Nat. Sci. Phila.*, ii, 1845, pp. 300, 301.

1846. Harris, E. Description of a [lately] new species of Parus [septentrionalis] from the Upper Missouri. <*Ann. Mag. Nat. Hist.*, xvii, 1846, pp. 452–454.

From *Proc. Acad. Phila.*, ii, 1845, pp. 300, 301.

1850. Bonaparte, C. L. Sur deux espèces nouvelles de Paridæ. <*Compt. Rend. de l'Acad. Sci.*, xxxi, Sept., 1850, pp. 478, 479.

Psaltriparus (g. n.) *personatus* (Westerm.), *Lophophanes wollweberi* (Westerm.), p. 478. *Callacanthis*, g. n., (type *Carduelis burtoni* Gould), p. 479. Voyez *t. c.*, p. 539.

1850. Cassin, J. Descriptions of new species of Birds of the genera Parus, Linn.; . . . <*Proc. Acad. Nat. Sci. Phila.*, v, Oct., 1850, pp. 103 – —, pll. i, ii.

The article is of much more extended scope than *Paridæ*. and I give the full title elsewhere; but here occur the original descriptions of *Parus annexus* [=*Lophophanes wollweberi*], p. 103, pl. i, and of *Parus* [*Lophophanes*] *atricristatus*, p. 103, pl. ii.

1851. Westerman, G. F. Beschrijving van twee nieuwe Soorten van Meezen. <*Bijdrag tot de Dierk.*, i. Deel, derde Aflevering, 1851, pp. 15, 16, met eene Plaat.

I. *Parus* (*Lophophanes*) *wollweberi*, p. 15, met eene Afbeelding; habitat in Mexico. II. *Psaltria personata*, p. 16, met eene Afbeelding van het Wijfje en Mannetje; habitat in Mexico, (=*Parus melanotis* Hartl., *R. Z.*, 1844, 216).

1852. Lawrence, G. N. Descriptions of new species of Birds of the genera Conirostrum [ornatum], . . . <*Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 112–117, pl. v. (Read Apr. 28, 1851.)

Here occurs, in a paper of wider scope, the orig. descr. of *Conirostrum ornatum*, p. 112, pl. v, f. 1, = *Aegithalus flaviceps* Sund.= *Paroides f.* sive *Auriparus f.* Baird. The title will be found in full in the North American part of this Bibliography.

1855. Sclater, P. L. On the Genus Culicivora of Swainson, and its component Species. <*P. Z. S.*, Jan. 9, 1855, pp. 11, 12.

Culicivora Sw., *Zool. Journ.* 1827, type *Muscicapa stenura* Temm., also embraces *M. cœrulea* Wils., thus including birds of different families. Cabanis separated them, rightly, but left *Culicivora* for *M. cœrulea*, proposing *Hapalura* for *M. stenura*. But *Hapalura* is thus strictly synonymous with *Culicivora*, and a new name is required for the genus of which *cœrulea* is typical. Hence *Polioptila*, g. n., p. 11.—The author treats of four spp. of the genus, *PP. cœrulea*, *dumicola*, *leucogastra*, and *bilineata*.

1856. Fatio-Beaumont, J. "S. [*i. e.* G.]" Bemerkungen über die Gruppe der Grau-Meisen. Mésanges grises—Pari cinerei. <*Naumannia*, vi, 1856, pp. 160–163.

P. borealis, *P. atricapillus*; *P. alpestris*, sp. n., p. 161.

1856. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Chordeiles, Swainson, and Polioptila, Sclater. <*Ann. Lyc. Nat. Hist. New York*, vi, 1856, pp. 165–169.

Polioptila melanura, p. 168.

1856. Sclater, P. L. On the Genus Culicivora of Swainson, and its component Species. <*Ann. Mag. Nat. Hist.*, xvii, 1856, pp. 68–70.

Not seen: from *P. Z. S.*, 1865, pp. 11, 12, *q. v.*

1856. Sclater, P. L. Note on Psaltria flaviceps, a third American Species of the Parine Genus Psaltria. <*P. Z. S.*, xxiv, 1856, pp. 37, 38.

The bird which had been described by Sundevall as *Aegithalus flaviceps* (Foglar från Nordöstra Afrika, *Öfvers. K. Vet. Ac. Förh.*, vii, 1850, p. 129) is here referred to the genus *Psaltria*; and the *Conirostrum ornatum* of Lawrence (*Ann. Lyc. N. Y.*, v, 1851, p. 112, pl. 5, f. 1) is shown to be synonymous therewith.

1857. Sclater, P. L. Note on Psaltria flaviceps, a third American Species of the Parine Genus Psaltria. <*Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 92, 93.

From *P. Z. S.*, March 11, 1856, pp. 37, 38, *q. v.*

1857. SCLATER, P. L. On Parus meridionalis and some other species mentioned in the Catalogue of Birds collected by M. Sallé in Southern Mexico. <*P. Z. S.*, xxv, 1857, pp. 81, 82.

Maintaining the distinctness of the species named from *P. atricapillus*.

1865. BRYANT, H. Description of a New Variety of Parus [hudsonicus var. littoralis] from Yarmouth, Nova Scotia. <*Proc Boston Soc. Nat. Hist.*, ix, 1865, pp. 368, 369.

1865. LAWRENCE, G. N. Descriptions of new species of Birds of the Families Paridæ, Vireonidæ, Tyrannidæ, and Trochilidæ, with a note on Myiarchus Panamensis. <*Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 37–39.

Polioptila plumbiceps, p. 37; from Venezuela.

1867. TRIPPE, T. M. The Chickadee [Parus atricapillus]. <*Am. Nat.*, i, 1867, pp. 584–587.

Biographical, with special reference to the nesting and eggs.

1875. WILDER, HARVEY. The Chickadees [Parus atricapillus]. <*St. Nicholas Mag.*, ii, 1875, pp. 79–81, one illust.

Popular account.

1876. COLES, C. E. The Blue-gray Gnatcatcher. (Polioptila cœrulea.) <*The Oölogist*, ii, No. 4, —, 1876, p. 31.

1876. COUES, E. Letters on Ornithology. No. 3.—The Blue-gray Gnatcatcher [Polioptila cœrulea]. <*The Chicago Field*, Aug. 26, 1876, figure.

Biography of the bird, from advance sheets of *Birds of the Colorado Valley*, with an original figure.

1876. COUES, E. Letters on Ornithology. No. 10.—Titmice, Tomtits or Chicadees [Paridæ]. <*The Chicago Field*, Dec. 30, 1876, figg. 2.

Popular account of North American species, with figg. of the heads of *Parus montanus* and of *Lophophanes bicolor*.

1878. BELDING, L. Nesting-Habits of Parus montanus. <*Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 102, 103.

1878. BREWER, T. M. The Blue-gray Gnatcatcher (Polioptila cærulea) in Massachusetts. <*Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, pp. 146, 147.

Being the second known instance of its occurrence in that State, the first having been recorded in *op. tom. cit.*, p. 45.

1878. COOPER, W. A. Notes on the breeding habits of Hutton's Vireo (Vireo huttoni) and the Gray Titmouse (Lophophanes inornatus), with a description of their Nests and Eggs. <*Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 68, 69.

1878. DEANE, R. The Blue-gray Gnatcatcher (Polioptila cœrulea) in Massachusetts. <*Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 45.

1879. [ALDRICH, C.] The Chickadee [Parus atricapillus]. <*Hamilton Freeman* (newspaper of Webster City, Iowa), of Feb. 26, 1879.

Popular account of habits.

1879. HENSHAW, H. W. Nest and Eggs of the Gray Titmouse (Lophophanes inornatus). <*Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 182, 183.

1879. INGERSOLL, [E.] Nest and Eggs of the Tufted Titmouse [Lophophanes bicolor]. <*The Oölogist*, v, No. 2, Aug., 1879, p. 10.

Quoted from his *Nests and Eggs of American Birds*, Part II, p. 44.

1879. INGERSOLL, E. Nest and Eggs of the Blue-gray Gnatcatcher [Polioptila cœrulea]. <*The Oölogist*, iv, No. 11, June, 1879, p. 86.

Quoted from his *Nests and Eggs of American Birds*, Part II, p. 41.

1879. LANGDON, F. W. Albinism in the Tufted Titmouse [Lophophanes bicolor]. <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 116.

Chamæidæ.

1847. Gambel, W. Chamæa, new genus of Birds allied to Parus. < *Am. Journ. Sci.*, iv, Sept., 1847, p. 286.

This, though the first special title on the subject, does not cover the original description of *Chamœa*, g. n., which occurs in a paper entitled "Remarks on the Birds observed in Upper California", *Proc. Phila. Acad.*, iii, Feb., 1847, p. 154. The genus also reappears in a translation of this paper, ,,Ueber die in Oberkalifornien beobachteten Vögel", in *Arch. f. Naturg.*, 1848, Bd. i, p. 102. The species, *C. fasciata*, was first described as *Parus fasciatus* in *Proc. Phila. Acad.*, ii, Aug., 1845, p. 265; and was figured in *Journ. Phila. Acad.*, 2d ser., i, pt. i, Dec., 1847, p. 34, pl. viii, f. 3.

1847. Gambel, W. Chamæa, a new genus of Birds allied to Parus. < *Ann. Mag. Nat. Hist.*, xx, 1847, pp. 441, 442.

From *Am. Journ. Sci.*, iv, Sept. 1847 p. 286.

Mniotiltidæ.

1818. **Rafinesque**, C. S. Further Account of Discoveries in Natural History, in the Western States, . . . <*Amer. Monthly Mag.*, iv, 1818, pp. 39–42.

No other bird-matter than *Rimamphus citrinus*, g. sp. n., p. 41, (*Cf.* Hartl., *R. Z.* viii, 1845, p. 343; Baird, B. N. A., 1858, p. 264. See also *Journ. de Phys.*, lxxxviii 1819, p. 418, where the genus and species reappears, along with *Helmitheros migratorius*, g. sp. n.)

1840. **Townsend**, J. K. Description of a New Species of Sylvia [tolmœi], from the Columbia River. <*Journ. Acad. Nat. Sci. Phila.*, viii, 1839, pp. 149, 150. (Read Apr. 2, 1839; vol. not pub. till 1840.)

1840. **Townsend**, J. K. Note on Sylvia Tolmœi. <*Journ. Acad. Nat. Sci. Phila.*, viii, 1839, p. 159. (Read Sept. 10, 1839; vol. pub. 1840.)

Claims priority for the name over that of *S. macgillivrayi* Aud., *Orn. Biog.*, v. 1839, p. 75; but actual priority of publication is with the latter. (See Baird, *B. N. A.*, 1858, p. 245.)

1842. **Leib**, G. C. [Note on Parus leucotis, Giraud.] <*Proc. Acad. Nat. Sci. Phila.*, i, 1842, p. 140.

Identified as *Setofaga* (sic) *rubra*. The bird is the *Cardellina* (*Ergaticus*) *rubra* of late authors.

1842. **Storer**, D. H. [Note on Sylvia formosa.] <*Proc. Bost. Soc. Nat. Hist.*, i, 1842, p. 55.

1844. **McCulloch**, T. On the importance of habit as a guide to accuracy in Systematical arrangement, illustrated in the instance of the Sylvia petechia [Dendrœca palmarum Baird] of Wilson, and all subsequent writers. <*Journ. Bost. Soc. Nat. Hist.*, iv, pt. iv, 1844, pp. 406–410.

Taking habit as his guide, makes the bird out to be a *Seiurus*. The article is in effect an argument *against* the importance of habit as a guide to classification, unless checked by investigation of physical characters.

1845. **Cabot**, S., Jr. [Occurrence of Silvia agilis at Brookline, Mass.] <*Proc. Bost. Soc. Nat. Hist.*, ii, 1845, 63.

1845. **Hartlaub**, G. Notes ornithologiques. <*Revue Zoologique*, viii, 1845, pp. 342, 343.

1. Sous la description de *Rimamphus citrinus* de Rafinesque (*Am. Month. Mag.*, iv, 1818, p. 41; *Journ. de Phys.*, lxxxviii, 1819, p. 418) l'auteur croit reconnaître la *Motacilla* [*Dendrœca*] *œstiva* des auteurs; et par conséquent le genre *Rhimamphus* serait identique avec *Sylvicola*, Sw., 1827.—2. *Helmitheros migratorius* Raf. (loc. cit) est declaré par Rafinesque même comme identique avec la *Sylvia vermivora* de Latham, pour laquelle Swainson et Audubon ont créé les genres *Vermivora* (1827) et *Helinaia* (1839): et l'auteur croit devoir réclamer la priorité en faveur de Rafinesque.

1852. **Baird**, S. F. Description of a new Species of Sylvicola [kirtlandi]. <*Ann. Lyc. Nat. Hist. New York*, v, 1852, pp. 217, 218, pl. vi.

1855. **Bryant**, H. [Notice of the occurrence in Massachusetts, in January, of Sylvicola coronata and S. parus.] <*Proc. Bost. Soc. Nat. Hist.*, v, 1855, p. 142.

1855. **Gundlach**, J. Description of a New Species of Bird of the Genus Sylvicola [pityophila] Swainson. <*Ann. Lyc. Nat. Hist. New York*, vi, 1855, pp. 160, 161.

1856. **Brewer**, T. M. [Observations on a nest of the Nashville Warbler (Vermivora rubricapilla) discovered by Mr. George Wells, at Lynn, Mass. With remarks on nests and eggs of other New England Sylvicolidæ.] <*Proc. Bost. Soc. Nat. Hist.*, vi, 1856, pp. 4–6.

1859. **Brewer**, T. M. [On the Distribution and Habits of the Summer Yellow-bird, Dendrœca æstiva.] <*Proc. Bost. Soc. Nat. Hist.*, vii, 1859, pp. 21, 22.

With special reference to the building of "two-story" nests by this species, to obviate incubation of egg of *Molothrus pecoris*.

1860. [Kirkpatrick, J.] Kirtland's Warbler [Dendrœca kirtlandi]. < *Ohio Farmer* (newspaper), vol. ix, No. 23, June 9, 1860, p. 179.

A specimen of this rare bird was shot a short time ago, near the "old river bed", Cleveland, by Mr. Durby, of University Heights. It was identified by R. K. Winslow, preserved and mounted by him, and proved to be a female. Until now there was but one specimen of this bird known, that obtained by Dr. Kirtland, now in the collection of the Smithsonian Institution at Washington. It was first described by Baird in the *Annals of the New York Lyceum* (1852), and afterward in Cassin's *Illustrations*. The present specimen is more lead-colored on the upper parts than Cassin's figure. Mr. Winslow informs us that Wm. Case, Esq., once shot a specimen, but it was so badly injured as to be unfit for preserving.

1861. Vennor, H. G. A short review of the Sylviadæ or Wood-Warblers found in the vicinity of Montreal. < *Canad. Nat. and Geol.*, vi, Oct., 1861, pp. 349–362.

Descriptions, compiled, and some accounts of habits.

1865. Sclater, P. L. Note on two rare Species of the American genus Dendrœca. < *Ibis*, 2d ser., i, 1865, pp. 87–89, and p. 237.

Critical remarks on 4 closely allied species—*D. virens*, *occidentalis*, *townsendi*, and *chrysoparia*, with a synonymatic and diagnostic list of them. *D. niveiventris* Salv., *P. Z. S.*, 1863, p. 187, pl. xxiv, f. 2, is referred to *occidentalis*. Cf. *tom. cit.*, p. 237, for correction of an error respecting *D. chrysoparia*.

1865. Sclater, P. L. On a New Species of the Genus Basileuterus of Cabanis, with a Synopsis of the known Species of the Genus. < *P. Z. S.*, xxxiii, 1865, pp. 282–286, pll. ix, x.

Diagnostic and synonymatic list of 15 spp., exclusive of *Myiothlypis nigricristata* and *Euthlypis lachrymosa*. *B. mesoleucus*, p. 286, pl. ix, f. 1, sp. n. Pl. ix, fig. 2, *B. cinereicollis*; pl. x, f. 1, *B. semicervinus*; pl. x, f. 2, *B. uropygialis*.

1866. Benvenuti, E. [Descrizione di una nuova specie di Dendroica (picciolii) del Brasile.] < *Annali R. Mus. Fisica e Storia Nat. di Firenze per il* 1865, nuova serie, i, 1866, p. 207.

The description occurs in an article of wider scope, describing four new *Trochilidæ*, with a note on Birds of Tuscany. The full title is given elsewhere.

1867. Brewer, T. M. [Remarks on the Wood-Warblers (Dendrœcæ) of North America.] < *Proc. Bost. Soc. Nat. Hist.*, xi, 1867, pp. 139, 140.

1868. Trippe, T. M. The Warblers [Sylvicolidæ]. < *Am. Nat.*, ii, 1868, pp. 169–183.

Biographical notes on various North American species.

1869. Boardman, G. A. Tennessee Warbler [Helminthophaga peregrina]. < *Am. Nat.*, iii, 1869, p. 222.

Very common at Milltown, Maine.

1869. Jackson, T. H. The Worm-eating Warbler [Helmitherus vermivorus]. < *Am. Nat.*, iii, 1869, p. 556.

Note on the nest and eggs.

1869. Purdie, H. A. [Notice of the Capture of Helminthophaga peregrina in Newton, Mass.] < *Proc. Bost. Soc. Nat. Hist.*, xiii, 1869, p. 93.

1869. Purdie, H. A. Tennessee Warbler [Helminthophaga peregrina]. < *Am. Nat.*, iii, 1869, p. 31.

Note on its geographical distribution.

1869. Purdie, H. A. Golden-winged Warbler [Helminthophaga chrysoptera]. < *Am. Nat.*, iii, 1869, p. 497.

On its local distribution and breeding.

1869. Trippe, T. M. The Tennessee Warbler [Helminthophaga peregrina]. < *Am. Nat.*, iii, 1869, p. 496.

On its local distribution.

1870. Sundevall, C. J. Öfversigt af fogelslägtet Dendroeca. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1869, 1870, pp. 605–618.

Div. I. *Flavovirides*. 1. *aestiva*. 2. *petechia*, a) *bartholemica*, b) *crucianca*, c) *barbadensis*, d) *cubana*, e) *jamaicensis*, f) *gallapagensis*, g) *peruviana*, h) *aequatoralis?* i) *panamensis?*, var. nn. 3? *eoa*. II. *Stigmatopteræ*: 4. *olivacea*, 5. *caerulescens*. III. *Albifasciatæ*. 6. *nigrescens*.

1870. SUNDEVALL, C. J.—Continued.

7. *townsendi*. 8. *chrysopareia*. 9. *occidentalis*. 10. *virens*. 11. *blackburniæ*. 12. *graciae*. 13. *dominica*. 14. *pityophila*. 15. *icterocephala*. 16. *pinus*. 17? *montana*. 18. *coronata*. 19. *auduboni*. 20. *castanea*. 21. *striata*. 22. *caerulea*. 23. *adelaidæ*. 24. *maculosa*. IV. *Acutirostres*. 25. *discolor*. 26. *palmarum*. 27. *tigrina*.—Necnon, auctori ignotae, 28. *pharetra*. 29. *kirtlandi*. 30. *carbonata*.—Adjectis descriptionibus, synonymis, locis, observationibusque.

1872. BREWER, T. M. [On the appearance of Oporornis agilis in Massachusetts.] <*Proc. Boston Soc. Nat. Hist.*, xv, 1872, pp. 3, 4.

1872. BREWER, T. M. [Note of the breeding of Dendrœca coronata in Maine.] <*Proc. Boston Soc. Nat. Hist.*, xv, 1872, p. 4.

1872. BREWER, T. M. [On the abundance of Dendrœca castanea in Wisconsin and Massachusetts in 1872.] <*Proc. Boston Soc. Nat. Hist.*, xv, 1872, pp. 192, 193.

1872. BREWER, T. M. [On the movements of Dendrœca castanea.] <*Ibis*, 3d ser., ii, 1872, p. 334.

1872. COUES, E. Nest and Eggs of Helminthophaga luciæ. <*Am. Nat.*, vi, 1872, p. 493.

Discovered by C. Bendire in Arizona; *cf.* Coues, *B. C. V.*, 1878, p. 221.

1872. RIDGWAY, R. On the Occurrence of Setophaga picta in Arizona. <*Am. Nat.*, vi, 1872, p. 436.

1872. SALVIN, O. Remarks on the Mniotiltine Genus Geothlypis. <*Ibis*, 3d ser., ii, 1872, pp. 147–152.

General commentary: differentiation of 8 spp.; details of their geographical distribution and migration.—*G. chiriquensis*, p. 148, new form of *G. æquinonctialis*.

1874. BREWSTER, W. A New Species of North American Warbler [Helminthophaga leucobronchialis]. <*Am. Sportsman*, v, Oct. 17, 1874, p. 33.

1874. HERRICK, H. Description of a new species of Helminthophaga [lawrencii]. <*Proc. Phila. Acad. Nat. Sci.*, 1874, p. 220, pl. 15.

1874. "SIGMA PHI." A bird not to be imposed upon. <*Forest and Stream*, iii, Sept. 10, 1874, p. 68.

Device of *Dendrœca æstiva* to escape infliction of the egg of *Molothrus ater*.

1874. STARK, A. C. The Chestnut-sided Warbler [Dendrœca pennsylvanica]. <*Am. Nat.*, viii, 1874, p. 756.

Breeding in West Virginia.

1875. ALLEN, J. A. Influence of Elevation and Latitude upon the Distribution of Species. <*Am. Nat.*, ix, No. 3, Mar., 1875, pp. 181, 182.

With special reference to *Dendrœca pennsylvanica*.

1875. BREWSTER, W. Habits of the Mourning Warbler (Geothlypis philadelphia). <*Rod and Gun*, vi, Apr. 24, 1875, p. 50.

Observations made in Maine: read before *Nutt. Ornith. Club*, April 3, 1875.

1875. FINSCH, O. Notes on Phænicomanes iora, Sharpe, and Abrornis atricapilla, Blyth. <*P. Z. S.*, Dec. 7, 1875, pp. 640, 641.

The "*Abrornis*" described from "China" (*Ibis*, 1870, p. 169) is no other than the North American *Myiodioctes pusillus* (Wils.).

1875. FISHER, A. K. Oporornis formosus breeding in Eastern New York. <*Am. Nat.*, ix, No. 10, Oct., 1875, p. 573.

1875. JORDAN, D. S. Dendroica dominica in Indiana. <*Am. Nat.*, ix, No. 5, May, 1875, p. 313.

With note on *Siurus ludovicianus* in Wisconsin.

1875. MINOT, H. D. Nesting of the Prairie Warbler [Dendrœca discolor] in New Hampshire. <*Am. Nat.*, ix, No. 9, Sept., 1875, p. 520.

1875. RIDGWAY, R. Nesting of the Worm-eating Warbler [Helmitherus vermivorus]. <*Field and Forest*, i, No. 2, July, 1875, pp. 10–12.

1875. W[ILLARD], S. L. Eggs and Nest of Black-Throated Green Warbler [Dendrœca virens.] <*Oölogist*, i, 1875, pp. 2, 3.

1875. [Willard, S. L.]. Warblers' [Sylvicolidæ] Nests. < *Oölogist*, i, 1875, p. 35.

1875. [Willard, S. L.]. The Yellow Warbler [Dendrœca æstiva] and its Enemy [Molothrus ater]. < *Oölogist*, i, 1875, p. 43.

1876. Brewster, W. Description of a [lately] new species of Helminthophaga [leucobronchialis]. < *Bull. Nutt. Ornith. Club*, i, No. 1, Apr., 1876, pp. 172, pl. 1.

The first notice of this species was in the *American Sportsman*, v, Oct. 17, 1874, pp. 33.

1876. Brewster, W. Capture of the Orange-crowned Warbler [Helminthophaga celata] in Massachusetts. < *Bull. Nutt. Ornith. Club*, i, No. iv, Nov., 1876, pp. 94, 95.

1876. Ernest, H. Warblers of the Western Reserve [Ohio]. < *Forest and Stream*, vi, June 15, 1876, p. 300.

Thirty-one species, with remarks.

1876. Jones, C. M. On the breeding of the Black-throated Blue Warbler (Dendrœca cærulescens) in Connecticut. < *Bull. Nutt. Ornith. Club*, i, No. 1, 1876, pp. 11–13.

1876. Ridgway, R. Notes on the Genus Helminthophaga. < *Ibis*, 3d ser., vi, Apr., 1876, pp. 166–171.

Critical discrimination of 10 spp. of the genus, with geographical distribution, and remarks on *H. lawrencii* and *H. leucobronchialis*. The former is suggested as possibly a hybrid between *pinus* and *chrysoptera*.

1876. Ridgway, R. On Geographical Variation in Dendrœca palmarum. < *Bull. Nutt. Ornith. Club*, i, No. iv, Nov., 1876, pp. 81–87.

D. palmarum subsp. n. *hypochrysea*, p. 84. The two supposed subspecies are very fully described.

1876. Salvin, O. Dendrœca chrysoparia. (The Yellow-cheeked Warbler.) < *Rowley's Ornith. Misc.*, part iii, Jan., 1876, pp. 181–184, plate.

Complete history of the species to date, with a beautiful colored plate of 3 figures. Cf. Purdie, *Bull. Nutt. Ornith. Club*, 1878, p. 60, and Coues, *ibid.*

1876. Warren, J. Nesting of the Golden-winged Warbler (Helminthophaga chrysoptera), in Massachusetts. < *Bull. Nutt. Ornith. Club*, i, No. 1, 1876, pp. 6–8.

1877. Brewer, T. M. [Letter on the Nest and Eggs of Dendrœca auduboni.} < *Ibis*, 4th ser., i, July, 1877, pp. 394, 395.

Fully describing specimens from Summit County, Colorado.

1877. Brewster, W. The Black-and-Yellow Warbler (Dendrœca maculosa). < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, pp. 1–7.

Full account of habits.

1877. Brewster, W. The Yellow-throated Warbler (Dendrœca dominica). < *Bull. Nutt. Ornith. Club*, ii, No. 4, Oct., 1877, pp. 102–106.

Very full account of its habits, with special reference to its breeding. Cf. *op. cit.*, 1878, p. 43.

1877. Boudwin, G. Yellow-pool [*i. e.*, poll] wood-warbler (Dendrœca æstiva). < *Forest and Stream*, viii, Apr. 5, 1877, p. 129.

Habits as observed at Philadelphia.

1877. Coues, E. Letters on Ornithology. No. 16 [bis]—The American Warblers.—Family Sylvicolidæ. < *The Chicago Field*, Dec. 15, 1877, p. 284, fig.

Popular account, with fig. of *Dendrœca virens*.

1877. Frazar, A. M. Audubon's Warbler [Dendrœca auduboni] in Massachusetts. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 27.

1877. Herrick, H. Capture of a second specimen of Helminthophaga lawrencei. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, pp. 19, 20.

1877. Maynard, C. J. Nesting Habits of the Worm-eating Warbler (Helmintherus vermivorus). < *Oölogist*, iii, No. 3, 1877, pp. 19, 20.

1877. Nutter, F. H. Red-Bellied Nut-Hatch (Sitta Canadensis) nesting on the Ground (?). < *Am. Nat.*, xi, No. 9, 1877, pp. 565, 566.

Afterward shown to be probably *Myiodioctes canadensis*.

1877. SMITH, G. STUART. Nesting of the Maryland Yellow-throat [Geothlypis trichas]. < *Oölogist*, iii, No. 10, p. 77; fig. in No. 11, p. 87.

1877. TROTTER, S. Capture of a Second Specimen of Helminthophaga leucobronchialis. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 79, 80.

1877. TROTTER, S. On Helminthophaga leucobronchialis (Brewster). < *Proc. Phila. Acad. Nat. Sci.*, 1877, p. 292.

Discovery of a third specimen, longtime in the Mus. Acad. Phila.

1878. BREWSTER, W. Note on Dendrœca dominica. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878. p. 43.

Correction of Brewster, *op. cit.*, Oct., 1876, pp. 102–106.

1878. BREWSTER, W. The White-Throated Warbler (Helminthophaga leucobronchialis) in Connecticut. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 99.

1878. BREWSTER, W. The Prothonotary Warbler (Protonotaria citrea). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 153–162.

An extended biographical sketch, well-written, interesting, and perfectly reliable.

1878. BREWSTER, W. Capture of a Fifth Specimen of the White-throated Warbler (Helminthophaga leucobronchialis). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 199, 200.

At Suffolk, Conn., July 3, 1875, by E. I. Shores.

1878. BUEL, J. A. [Capture of Kirtland's warbler (Dendrœca kirtlandi) at Cleveland, Ohio.] < *The Country*, ii, June 1, 1878, p. 89.

1878. COLLINS, W. L. Tragic Fate of a Summer Warbler [Dendrœca æstiva]. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 197.

Noosed and killed by a thread from her unfinished nest.

1878. COUES, E. Nest and Eggs of Helminthophaga pinus. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 194.

Notes on two nests secured by S. N. Rhoads near West Chester, Pa.

1878. DEANE, R. The Blue-winged Yellow Warbler (Helminthophaga pinus) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 188.

The second record of its occurrence in the State, where it had recently been denied by T. M. Brewer, though long since recorded as a Massachusetts bird, and the original specimen preserved (cf. *Proc. Bost. Soc.*, vi, p. 386).

1878. [ERNST, H.] Another Kirtland Warbler [Dendrœca kirtlandi]. < *Forest and Stream*, x, June 20, 1878, p. 379.

Supposed "third instance" (really about the eighth) of its capture in U. S.; this time near Cleveland, Ohio. See above, 1878, BUEL, J. A.

1878. FISHER, A. K. The Kentucky Warbler (Oporornis formosus) at Sing Sing, N. Y. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 191, 192.

"There must have been at least sixteen individuals here, and undoubtedly four nests."

1878. INGERSOLL, E. Nesting Habits of the Black-and-White Creeper (Mniotilta varia). < *Oölogist*, iv, No. 1, Mar., 1878, pp. 1, 2.

1878. MURDOCH, J. Report of the Second Capture of the Orange-crowned Warbler (Helminthophaga celata) in New Hampshire. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 96, 97.

1878. NUTTER, F. H. Nesting Habits of the Canada Flycatcher [Myiodioctes canadensis (?)]. < *Amer. Nat.*, xii, No. 6, June, 1878, p. 397.

Referring to a set of eggs formerly (*op. cit.*, xi, p. 565) referred to "*Sitta canadensis?*" now doubtfully identified as above.

1878. PURDIE, H. A. Capture of the Yellow-throated Warbler [Dendrœca dominica] in Massachusetts, and Notes on other Rare Massachusetts Birds. < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, p. 146.

The remainder of the paragraph speaks of *Rallus elegans* and *Anser hyperboreus* in the same State.

1878. Salvin, O. A Synopsis of the Genus Setophaga. <*Ibis*, 4th ser., ii, No. 7, July, 1878, pp. 302–321, pll. vii, viii.

A carefully-wrought article, giving synonymy, diagnosis, habitat, and criticism of 15 spp. The genus reads *Setophaga* Sw., 1827 = *Sylvania* Nutt., 1832 nec 1840; with *Euthlypis* Cab., 1850, as a subgenus, based on *E. lachrymosa*, and *Myioborus* Baird, 1865, as a subgenus, covering 13 spp. (all the rest except *S. ruticilla*).

The species recognized are *S. ruticilla*, *S.* (*M.*) *picta*, *miniata*, *aurantiaca*, *verticalis*, *melanocephala*, *brunneiceps*, *castaneocapilla*, *chrysops* (sp. n., p. 314, pl. vii, f. 2 = *flaveola* Kaup nec Lafr.), *ornata*, *ruficoronata* (pl. vii, f. 1), *bairdi*, sp. n., p. 317, pl. viii, f. 1 = *ruficoronata* Scl. Salv. Bd. nec Kaup), *albifrons* (pl. viii, f. 2), *torquata*, and *S.* (*E.*) *lacrymosa*.—Note on *Setophaga multicolor* Bp.

1878. Trotter, S. A Third Specimen of Helminthophaga leucobronchialis. <*Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 44, 45.

See Trotter, *Pr. Phila. Acad.*, 1877, p. 292.

1879. Allen, J. A. Nest and Eggs of the Cerulean Warbler [Dendrœca cœrulea]. <*Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, pp. 25–27.

Fully describing three nests and eggs of this species, heretofore not satisfactorily known, Audubon's account being "evidently erroneous in nearly every particular", and the only other one, Brewer's, being very discrepant.

1879. Brewer, T. M. The Eggs of the Redstart (Setophaga ruticilla). <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 118.

1879. Cory, C. B. Capture of Kirtland's Warbler (Dendrœca kirtlandi) in the Bahama Islands. <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 118.

1879. C[oues], E. [Note on the fourth known specimen of Dendrœca chrysoparia.] <*Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, p. 60.

1879. Coues, E. Note on Dendrœca townsendi. <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 117.

Observations on habits, by W. A. Cooper.

1879. Deane, R. Occurrence of the Western Variety of the Yellow Red-poll Warbler [Dendrœca palmarum hypochrysea] in Massachusetts. <*Bull. Nutt. Ornith. Club*, iv, No. 1, Jan. 1879, p. 60.

Correction, *tom. cit.*, p. 186.

1879. Deane, R. Additional Capture of the Cærulean Warbler [Dendrœca cœrulea] in New England. <*Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, p. 185.

1879. Deane, R. Correction [respecting Dendrœca palmarum hypochrysea, this Bull., iv, p. 60]. <*Bull. Nutt. Ornith Club*, iv, No. 3, July, 1879, p. 186.

1879. Fisher, A. K. Helminthophaga leucobronchialis in New York. <*Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 234.

1879. Gibbs, M. A New Bird [Helminthophaga gunnii]. <*Daily Morning Democrat* (Grand Rapids, Mich.), xvi, No. 224, June 1, 1879.

Taken in Ottawa County, Mich., May 25, 1879; subsequently identified with *H. leucobronchialis*; cf. *Bull. Nutt. Club*, iv, 1879, pp. 185 and 232.

1879. Jeffries, J. A. The Yellow-rumped Warbler (Dendrœca coronata) wintering in Swampscott, Mass. <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 118.

1879. Keppel, R. J. Nesting Habits of the American Redstart. (Setophaga-ruticilla.) <*The Journ. of Sci.* (Toledo, Ohio), 2d ser., ii, No. 7, Sept., 1879.

1879. Langdon, F. W. Nesting of the Kentucky Warbler (Oporornis formosa) in Ohio. <*Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 236, 237.

With full description of the nest and eggs.

1879. Newton, [A.] [Remarks on Exhibition of rare Sylvicolidæ from Jamaica.] <*P. Z. S.*, June 17, 1879, pp. 552, 553.

Dendrœca pharetra Gosse, and *Helinaia swainsoni* Aud.!—According to Agassiz the name of the latter genus should be written *Helonœa*.

1879. Nichol[a]s, Geo. Lawrence. Migration of Some Warblers Through Summit, N. J., During the Last Spring. <*Forest and Stream*, xii, July 17, 1879, p. 464.

Notes on arrivals and departures of 18 spp.

1879. **Purdie, H. A.** Record of Additional Specimens of the White-throated Warbler (Helminthophaga leucobronchialis). < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 184, 185.

Three, in addition to five before known, with presumptive identification of *H. gunnii* Gibbs (*Daily Democrat*, newspaper of Grand Rapids, Mich., June 1, 1879) as still another.

1879. **Purdie, H. A.** Another Kirtland's Warbler (Dendrœca kirtlandi). < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 185, 186.

Making the ninth known specimen, all of which are here recorded.

1879. **Rathbun, S. F.**, *and* **Wright, F. S.** Hooded Warbler [Myiodioctes mitratus] in Western New York. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 116, 117.

1879. **Rhoads, S. N.** Helminthophaga pinus, Oporornis formosa, and Mniotilta varia breeding in Pennsylvania. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 234, 235.

1879. **Ridgway, R.** Note on Helminthophaga gunnii, Gibbs. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp, 233, 234.

Its identification with *H. leucobranchialis*, upon examination of the type-specimen.

1879. **Trotter, S.** Some Light on the History of a Rare Bird [Helminthophaga leucobronchialis]. < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, p. 59.

Note of the third specimen known, being one shot by J. G. Bell, at Rockland, N. Y., so long ago as 1832.

1879. **Wheaton, J. M.** Kirtland's Warbler [Dendrœca kirtlandi] again in Ohio. < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, p. 58.

Record of two specimens, and perhaps of a third, additional to those before known.

Motacillidæ.

1814. NILSSON, S. Analecta Ornithologica. Pars I. Motacillas Scanenses sistens. Præs. Sv. Nilsson, Resp. A. A. Retzius, Lundensis. Lundae 1814. 4to. pp. 16.—Resp. C. G. Retzius, Lundens. cont. pp. 17–30, m. tabb. 2.
Non mihi obvia.—Pars II., vide sub *Charadriidis*, hujusce bibliographiæ.

1827. FABER, F. [Anthus rupestris.] < *Tidssk. for Naturvid.*, No. 13, 1827, p. 58.
Not seen. *Cf. Isis*, 1827, p. 1028; *Féruss. Bull.*, xv, 1828, p. 392.

1827. FABER, F. Ueber Anthus rupestris. < *Oken's Isis*, Bd. xx, 1827, pp. 1028, 1029.
Nebst Nachtrag von Heinr. Lichtenstein, p. 1029.

1827. TRAILL, [T. S.] Tit-Lark [Anthus pratensis] caught at Sea. < *Edinb. New Philos. Journ.*, ii, 1827, p. 393.

1828. FABER, [F.] Sur l'Anthus rupestris, nouvelle espèce; par M. Faber. . . < *Féruss. Bull.*, 2e sect., xv, 1828, p. 392.
Tidssk. for Naturvid., 1827, No. 13, p. 58; *Isis*, 1827, p. 1028.

1828. GLOGER, C. W. L. Wegen Anthus rupestris und A. aquaticus. < *Oken's Isis*, Bd. xxi, 1828, p. 693, 694
Vergl. *Isis*, 1827, s. 597, folg. Nebst Nachtrag von Heinr. Lichtenstein.

1831. GOURCY-DROITAUMONT, F. (*Graf von*). Etwas über das verschiedene Farbenkleid der Motacilla Feldegg Michahelles, oder der in Dalmatien vorkommenden Motacilla melanocephala Lichtenstein, von Felix, Grafen von Gourcy-Droitaumont, eingesandt von Brehm. < *Oken's Isis*, Bd. xxiv, 1831, pp. 701–705.
Nebst Nachschrift von C. L. Brehm.

1831. MICHAHELLES, *Dr.* —. Nachträgliche Bemerkung zu Motacilla Feldegg mihi. *Oken's Isis*, Bd. xxiv, 1831, p. 403.

1832. GOULD, J. [On a New Species of Wagtail, Motacilla neglecta.] < *P. Z. S.*, ii, 1832, pp. 129, 130.

1832. "ORNIS." The Pipit Lark distinct from the Meadow Pipit, or Titlark. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 287, 288.

1832. "SCOLOPAX RUSTICOLA." The Spring, or Yellow, Wagtail (Motacilla [Budytes] flava). < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 288.

1832. "SCOLOPAX RUSTICOLA." The Pied Wagtail (Motacilla lotor Rennie, M. alba Linn.). < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 288, 289.

1834. BOIE, J. F. Anthus Richardi. < *Oken's Isis*, Bd. xxvii, 1834, pp. 385, 386.

1834. "T. G." On the Habits and Note of the Grey Wagtail [Motacilla boarula], and on the Note of the Spring Wagtail [Budytes flava]. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 577–579.

1835. GOULD, [J.] Viele Exemplare von 2 Vögeln, die unter dem Namen Motacilla flava verwechselt wurden. < *Oken's Isis*, Bd. xxxviii, 1835, p. 432.
Motacilla neglecta. *Cf. P. Z. S.*, 1832, p. 129.

1836. HOY, J. D. A Notice of the Fact of the Capture of an Individual of the Grey-headed Yellow Wagtail (Motacilla neglecta Gould), at Stoke Nayland, Suffolk. < *Loudon's Mag. Nat. Hist.*, ix, 1836, p. 352.

1837. EDITORIAL. Motacilla neglecta Gould [in Suffolk]. < *Mag. of Zool. and Bot.*, i, 1837, p. 200.

1837. GOULD, J. [Motacilla leucopsis, sp. n. from India.] < *P. Z. S.*, v, 1837, p. 78.

1837. GOULD, J. [Remarks on the Common British Wagtail (Motacilla yarrelli, sp. n.).] < *P. Z. S.*, v, 1837, pp. 73, 74, 78.

1837. GOULD, J. Observations on some Species of the Genus Motacilla of Linnæus. < *Charlesw. Mag. Nat. Hist.*, i, 1837, pp. 459-461.
Discrimination of *MM. flava, yarrelli*, and *lugubris*.

1837. HANCOCK, A. Motacilla neglecta [in England]. < *Mag. of Zool. and Bot.*, i, 1837, p. 491.

1841. MUMMERY, S. Anthus Richardi [in England]. < *Ann. Mag. Nat. Hist.*, vi, 1841, p. 398.

1841. YARRELL, W. [Exhibition of a British Specimen of Motacilla alba.] < *P.Z. S.*, ix, 1841, pp. 46, 47.

1841. YARRELL, W. Motacilla alba of Linnæus. < *Ann. Mag. Nat. Hist.*, vii, 1841, p. 350.

1842. MUMMERY, S. Anthus Richardi [in the Isle of Thanet]. < *Ann. Mag. Nat. Hist.*, viii, 1842, p. 396.

1843. ATKINSON, J. C. Observations on previous [*Zool.*, i, 136 and 230] notes on the Grey Wagtail [Motacilla boarula]. < *Zoologist*, i, 1843, pp. 358-360.

1843. GREENWOOD, A. Note on the occurrence of Richard's Pipit [Anthus richardi] in Cornwall. < *Zoologist*, i, 1843, p. 190.

1843. HEPPENSTALL, J. Note on the Grey Wagtail [Motacilla boarula]. < *Zoologist*, i, 1843, p. 140.

1843. HOLLAND, A. Enquiry respecting a Wagtail [Motacilla boarula. With note in answer by H. Doubleday]. < *Zoologist*, i, 1843, pp. 136, 137.

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1839. LAFRESNAYE, F. DE. G. Moqueur. Orpheus. Swainson. M. a long bec. O. longirostris. Lafresnaye. < *Guér. Mag. de Zool.*, 2e sér., année 1839, Ois., pp. 1–4, pl. 1.

Décrit pour la première fois dans la *Rev. Zool.*, i, 1838, p. 54.—En suite, une liste de dix espèces du genre Moqueur (*Mimus* + *Harporhynchus*).

1843. LAFRESNAYE, F. DE. Sur un petit groupe d'oiseaux des Antilles. < *Revue Zoologique*, vi, 1843, pp. 66–68.

Ramphocinclus (g. n.), p. 66; *R. tremulus*, *R. gutturalis*, pp. 67, spp. nn.

Cf. P. Z. S., 1855, p. 213—*R. tremulus* considered probably = *Stenorhynchus ruficauda* Gould, *P. Z. S.*, 1835 (*Cinclocerthia*).

1843. LESSON, R. P. Note sur le genre d'oiseau appelé Ramphocinclus. < *Revue Zoologique*, vi, 1843, pp. 325–327.

1844. BREWER, T. M. [Facts tending to clear up the confusion and errors in the history of the Hermit Thrush (Turdus solitarius, Wils.)] < *Proc. Bost. Soc. Nat. Hist.*, i, 1844, pp. 190, 191.

Chars. of 3 spp.—*Merula wilsonii* = *T. fuscescens* Steph.; *M. solitaria* = *T. pallasi* Cab.; *M. olivacea* sp. n. = *T. swainsoni* Cab., p. 191. The name "olivacea", moreover, is preoccupied in the genus.

1844. LAFRESNAYE, F. DE. Réponse de M. F. de Lafresnaye aux observations de M. Lesson, sur son genre Ramphocinclus, insérées dans cette Revue, 1843, page 325. < *Revue Zoologique*, viii, 1844, pp. 43–46.

Au sujet du genre *l'Herminierus*, Less., MS.

1844. LAFRESNAYE, [F. DE]. Ueber Orpheus longirostris [u. s. w.]. < *Oken's Isis*, Bd. xxxvii, 1844, p. 409.

Auszug aus *Guér. Mag. de Zool.*, 1839.

1845. LAFRESNAYE, [F.] DE. Sur le Fournier Rosalbin, Furnarius roseus Lesson, Illustrations de zoologie. < *Revue Zoologique*, viii, 1845, pp. 10, 11.

Noting the inaccuracy of the plate, especially as regards the form of the bill, giving the habitat of the bird as Colombia, not Brazil, and discussing the position of the species among the Furnarians. The article is the fifth of the "Mélanges Ornithologiques."

1848. CABOT, S., JR. [Occurrence of Turdus nævius in New Jersey.] < *Proc. Bost. Soc. Nat. Hist.*, iii, 1848, p. 17.

1848. DEBY, J. Note on the occurrence of Turdus minor of Latham, in Belgium. <*Zoologist*, vi, 1848, pp. 1966–1968.

1848. [JARDINE, W.] Turdus xanthoscelus, Jardine [sp. n., from Tobago]. < *Jard. Contrib. Orn.*, 1848, p. 14, pl. i.

1849. Homeyer, E. F. v. Über die Gattung Turdus. < *Rhea*, Heft ii, 1849, pp. 144–159.

21 Arten, monographisch bearbeitet, nebst Synonymik, Kennzeichen, Aufenthalt und Bemerkungen. *TT. varius, lunulatus, auroreus, pallasii, wilsonii, swainsoni, viscivorus, hodgsoni* (sp. n., p. 150), *musicus, pallens, werneri, iliacus, naumanni, fuscatus, ruficollis, atrigularis, sibiricus, pilaris, migratorius, merula,* und *torquatus.*

1850. Hartlaub, [G.] Description d'une nouvelle espèce de Turdus [aurantiirostris] de Venezuela. < *Rev. et Mag. de Zool.*, ii, 1850, p. 158.

1850. Hartlaub, G. Note upon Turdus vulpinus, Hartl. < *P. Z. S.*, xviii, 1850, p. 276, pl. (Aves) xxxii.

Décrit comme espèce nouvelle dans la *Rev. et Mag. de Zool.*, i, 1849, p. 276, provenant de Caraccas; c'est une synonyme de *Furnarius roseus*, *Less. Ill. Zool.*, pl. 5; c'est-à-dire, de *Rhodinocichla rosea.*

1850. Kaup, J. [J.] Ueber die Bedeckung der Fusswurzel des Turdus migratorius. < *Arch. f. Naturg.*, 1850 (1), pp. 42, 43, pl. ii, fig. i–v.

Shows the gradual transition with age from the scutellation to the booting of the tarsus.

1850. Naumann, J. F. Kritische Bemerkungen über einige in Deutschland seltene Drosselarten. < *Naumannia*, i, Heft iii, 1850, pp. 1–12.

1851. Cordeaux, W. H. Occurrence of the Mocking Bird of America (Turdus [Mimus] polyglottus) in the County of Kent. < *Zoologist*, ix, 1851, p. 3277.

1851. [Jardine, W.] Turdus aurantiirostris, Hartlaub. < *Jard. Contrib. Orn.*, 1851, p. 80, pl. lxxii.

1851. Naumann, J. F. Vorläufige Anzeige der seit c. 30 und einigen Jahren in Deutschland vorgekommenen, früher hier nicht bemerkten oder übersehenen fremden Drossel-Arten, welche in naturgetreuen Abbildungen und Beschreibungen für die nächsten Supplement-Hefte zu meiner Naturgesch. d. Vögel Deutschlands ausführlicher dargestellt werden sollen. < *Naumannia*, i, Heft iv, 1851, pp. 1–9.

1852. Cabanis, J. [Das Vorkommen von Turdus migratorius in Deutschland, Dec. 1851—ohne Zweifel durch Siberia.] < *Naumannia*, ii, Heft ii, 1852, pp. 122, 123.

1852. Hartlaub, G. Sur une nouvelle espèce du genre Melanotis [M. hypoleucus], Bonap. (Consp., p. 276). < *Rev. et Mag. de Zool.*, iv, 1852, p. 460.

1852. Lawrence, G. N. Mimus melanopterus [n. sp.]. < *Ann. Lyc. Nat. Hist. New York*, v, 1852, pp. 35, 36, pl. ii. (Read Apr. 16, 1849.)

1852. Lawrence, G. N. Descriptions of New Species of Birds, of the Genera Toxostoma [Le Contei, p. 121] Wagler, . . . < *Ann. Lyc. Nat. Hist. New York*, v, 1852, pp. 121–123. (Read Sept. 8, 1851.)

Other spp. here described are a *Tyrannula* and a *Plectrophanes:* title is to be found in full in N. Am. part of this Bibl.

1853. Cabanis, J. Turdus migratorius, Lin. als Gast in Deutschland. < *J. f. O.*, i, 1853, pp. 67–69.

Gleichfalls über das Vorkommen der genannten Arten und *T. pallasi* in Helgoland.

1854. Gould, J. Description of a New Bird from Guatemala, forming the type of a new Genus [Malacocichla dryas]. < *P. Z. S.*, xxii, Nov. 28, 1854, pp. 285, 286, pl. (Aves) lxxv.

1855. Sclater, P. L. Note on the Genus Legriocinclus, Lesson, and its synonyms. < *P. Z. S.*, xxiii, 1855, pp. 212–214.

Legriocinclus Less., 1847 = *Ramphocinclus* Lafr., 1843 = *Cinclocerthia* Gray, 1840 = *Stenorhynchus* Gould, 1835 (preoccupied): these, with *Herminierus* Less. and *Cinclops* Bp., 1854, proposed to be reduced to one group, or at all events to be placed in close juxtaposition. There is also important criticism on the species concerned.

1856. Gould, J. Description of a New Bird from Guatemala, forming the type of a New Genus [Malacocichla dryas]. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 78, 79.

From *P. Z. S.*, Nov. 28, 1854, pp. 285, 286.

1856. Sclater, P. L. Note on the Genus Legriocinclus, Lesson, and its synonyms. < *Ann. Mag. Nat. Hist.*, 2d ser., xviii, 1856, pp. 341–343.
From *P. Z. S.*, Nov. 27, 1855, pp. 212–214, *q. v.*

1856. [Billings, E.] On the Robin, or Migratory Thrush (Turdus migratorious [sic]). < *Canad. Nat. and Geol.*, i, 1856, pp. 142–146.
Compiled description and account of distribution and habits, mainly from Wilson.

1858. Gould, A. A. [On the Food of the American Robin (Turdus migratorius, Linn.).] < *Proc. Boston Soc. Nat. Hist.*, vi, 1858, p. 403.

1858. Treadwell, D. [Detailed account of the feeding and growth of the American Robin (Turdus migratorius, Linn.).] < *Proc. Boston Soc. Nat. Hist.*, vi, 1858, pp. 396–399.

1859. Sclater, P. L. A Synopsis of the Thrushes (Turdidæ) of the New World. < *P. Z. S.*, xxvii, June 28, 1859, pp. 321–347.
Sketch of the group and tables of geographical distribution of *Turdus*. Systematic synonymatic and diagnostic synopsis, with critical annotation of the species: *Catharus*, 7; *Turdus*, 39; *Cichlerminia*, 1; *Margarops*, 3; *Galeoscoptes*, 3; *Melanoptila*, 1; *Melanotis*, 2; *Rhamphocinclus*, 1; *Cinclocerthia*, 2; *Harporhynchus*, 6; *Oreoscoptes*, 1; *Mimus*, 20.—*Catharus occidentalis*, p. 323; *Turdus pinicola*, p. 334; spp. nn. It is an important revision of the whole subject, which should be consulted preparatory to any study of this group.

1859. Sclater, P. L. On a new species of Catharus [occidentalis]. < *Ann. Mag. Nat. Hist.*, (3), iv, 1859, p. 400.
From *P. Z. S.*, June 28, 1859, p. 323.

1860. Bryant, H. [Note on Turdus minimus Lafr.] < *Proc. Bost. Soc. Nat. Hist.*, vii, 1860, pp. 226, 227.
This untitled article also describes *Vireo bogotensis*, sp. n., p. 227.

1861. Sclater, P. L. Remarks on the Geographical Distribution of the Genus Turdus. < *Ibis*, 1861, iii, pp. 277–283, pl. viii.
Palaearctic 16, Indian 15 (*T. schlegelii*, sp. n., p. —), Aethiopian 9, Australian 5, Nearctic 12, Neotropical 27. Pl. viii represents *T. fulviventris*.

1861. Treadwell, [D.] On the Feeding and Growth of the American Robin [Turdus migratorius]. < *Rep. Com'r of Patents for* 1860, *Agric.*, 1861, pp. 88, 89.

1862. Jenks, J. W. P. [Report upon the habits of the Robin, Turdus migratorius.] < *Seventeenth Ann. Rep. Ohio State Board of Agric.*, 1862, pp. 288–291.
Very full results of investigation upon the food of this species—one of the best contributions upon this particular subject extant.

1862. Sacc, *Dr.* [Einiges über Turdus polyglottus in Gefangenschaft.] < *Zool. Gart.*, iii, 1862, p. 215.

1863. Chiapella, C. [Histoire détaillée du Merle moqueur, Mimus polyglottus.] < *Journal de Bordeaux*, du 22 décembre 1863.
Pas vue moi-même.

1863. Hill, R. Notes on the Mimidæ of Jamaica. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 304, 305.
Descriptions; field-notes of habits.

1863. Putnam, F. W. [Nesting of Turdus migratorius on the ground, and on a beam connected with the moving machinery of a sawmill.] < *Proc. Boston Soc. Nat. Hist.*, ix, 1863, p. 248.

1863. Schüler, A. Spottvögel (Turdus polyglottus). < *Zool. Gart.*, iv, 1863, p. 256.
Dessen Nahrung, in Gefangenschaft.

1865. Bryant, H. Remarks on the Genus Galeoscoptes, Cabanis, with the Characters of two new Genera, and a Description of Turdus plumbeus Lin. < *Proc. Boston Soc. Nat. Hist.*, ix, 1865, pp. 369–372.
Mimokitta, *Mimocichla* (Scl., 1859).

1865. Chiapella, C. La Merle moqueur [Mimus polyglottus], éducations faites a Bordeaux. < *Bull. Soc. Acclim.*, 2 sér., ii, 1865, pp. 466–473.

1865. CHIAPELLA, C. Der amerikanische Spottvogel [Mimus polyglottus] und seine Zucht in Bordeaux. <*Zool. Gart.*, vi, 1865, pp. 424–426.

Auszug aus d. *Bull. Soc. d'Acclim.*, 8 août 1865, pp. 466–473.

1866. MCKAY, A. W. On the Turdus migratorius. <*Rep. Brit. Ass. Adv. Sci.* for 1865, 1866 (*Misc. Comm.*), p. 90.

A few desultory observations, not entirely correct.

1867. MANGER, —. [Die Katzendrossel (Mimus carolinensis) in Gefangenschaft.] <*Zool. Gart.*, viii, 1867, pp. 191, 192.

1868. ALLEN, J. A. The "Dwarf Thrush" ["Turdus nanus"] again. <*Am. Nat.*, ii, 1868, pp. 488, 489.

Identifies the supposed Massachusetts example (*tom. cit.*, p. 218) with *T. olivaceus*, and considers the supposed Pennsylvania one (*tom. cit.*, p. 380) to be not distinct from *T. pallasi*.

1868. "A. P. R." The Robin [Turdus migratorius] at Fault. <*Am. Nat.*, ii, 1868, p. 217.

Failure of the bird's attempts to build a nest under the eaves of a barn.

1868. GARLICK, T. Migrations of Birds [*i. e.*, of Turdus migratorius]. <*Am. Nat.*, ii, 1868, p. 492.

Reappearance, at Cleveland, Ohio, for five successive years, of an albino of this species.

1868. HUGHES, D. D. Albino Robin [Turdus migratorius]. <*Am. Nat.*, ii, 1868, p. 490.

1868. JACQUES, D. H. The Mocking Bird [Mimus polyglottus]. <*Am. Nat.*, ii, 1868, p. 215.

Brief note on its singing in winter, and on its breeding.

1868. SAMUELS, E. A. The Dwarf Thrush [Turdus nanus] in Massachusetts. <*Am. Nat.*, ii, 1868, p. 218.

Cf. Allen, *tom. cit.*, pp. 488, 489.

1868. TRIPPE, T. M. The Dwarf Thrush [Turdus nanus]. <*Am. Nat.*, ii, 1868, p. 380.

Its supposed occurrence in New Jersey (*cf.* Allen, *tom. cit.*, pp. 488, 489).

1869. ["A. P. R."] The Robin [Turdus migratorius] at Fault. <*Zoologist*, 2d ser., iv, 1869, p. 1604.

From 'American Naturalist,' June, 1868, p. 217.

1869. BREE, C. R. American Robin [Turdus migratorius]. <*Zoologist*, 2d ser., iv, 1869, p. 1644.

1869. LINDEN, C. Albino Robins [Turdus migratorius]. <*Am. Nat.*, iii, 1869, p. 279.

Two cases, Buffalo, N. Y.

1869. MAYNARD, C. J. The Dwarf Thrush [Turdus nanus] again. <*Am. Nat.*, ii, 1869, pp. 662, 663.

The supposed Massachusetts example reaffirmed to be *T. swainsoni;* from which, also, *T. aliciæ* is decided to be not distinct.

1869. RIDGWAY, R. Notices of certain obscurely known species of American Birds. <*Proc. Acad. Nat. Sci. Phila.*, xxi, June, 1869, pp. 125–135, 9 woodcc.

I.—The North American Wood Thrushes, *Hylocichla*, pp. 127–129. Treating of 7 spp. The article also treats of species of II. *Pyranga*, and of III. *Quiscalus*.

1871. ANON. The Mocking-bird [Mimus polyglottus]. <*Appleton's Journ.*, v, Feb., 1871, p. 230.

Becoming intoxicated by freely partaking of berries of the pride-of-China tree.

1871. ANON. Der peruanische Spottvogel [ ]. <*Aus der Natur*, lv, oder n. F., xliii, 1871, p. 80.

1871. BOARDMAN, G. A. Mocking Bird [Mimus polyglottus] in Maine. <*Am. Nat.*, v, 1871, p. 121.

1872. CABANIS, J. [Turdus auroreus Pall. = T. nævius Gm.] <*J. f. O.*, xx, 1872, p. 157.

1872. COUES, E. Ornithological Query. <*Am. Nat.*, vi, 1872, p. 47.

Whether certain partial albino *Turdus migratorius* were not offspring of a perfect albino and a normal individual.

1872. Coues, E. The Nest, Eggs and Breeding Habits of Harporhynchus crissalis. < *Am. Nat.*, vi, 1872, pp. 370–371.

1872. Drew, S. A. L. Reason or Instinct in the Robin [Turdus migratorius]? < *Am. Nat.*, vi, 1872, p. 52.

Observations on the nesting.

1873. Coues, E. Some United States Birds, New to Science, and other Things Ornithological. < *Am. Nat.*, vii, 1873, pp. 321–331, figg. 65–70.

Peucœa carpalis, p. 322; *Harporhynchus bendirei*, p. 330, spp. nn.; and, among "other things ornithological", a slight monography of *Harporhynchus*, with figures of the heads of six spp. of that genus.

1873. Sclater, P. L. [Notice of a New Work on American Birds.] < *P. Z. S.*, 1873, p. 554.

Notice of the *Nomenclator Avium Neotropicalium.—Turdus subcinereus*, *P. Z. S.*, 1866, p. 320 = *Colluricincla rufiventris*, of Australia. *Cnipolegus* sp. of Cat. A. B., p. 203 = *Chasiempis sandwichensis*.

1874. Boyce, C[aroline]. The Robin [Turdus migratorius]. < *Am. Nat.*, viii, 1874, pp. 203–208.

Field notes on *Turdus migratorius*.

1874. Boyce, Caroline. Usefulness of the Robin [Turdus migratorius]. < *Pop. Sci. Monthly*, Nov., 1874, p. 124.

1874. Brewer, T. M. [Remarks on the species of Turdus of the subgenus Hylocichla.] < *Proc. Bost. Soc. Nat. Hist.*, xvi, 1874, p. 115.

Critical; 8 spp. recognized.

1874. Cabanis, J. [Identität von Turdus apicalis Hartl. und Margarops montanus (Lafr.).] < *J. f. O.*, 1874, pp. 350, 351.

1874. Wilson, Robert. The Mocking-bird [Mimus polyglottus]. < *Appleton's Journ.*, xi, June, 1874, p. 776.

History of the bird woven into a novelette.

1875. Abbott, C. C. Notes on Habits of certain Thrushes [in New Jersey]. < *Rod and Gun*, vi, May 8, 1875, p. 86.

Read before *Nutt. Ornith. Club*, April, 25, 1875.

1875. Anon. [Mimus carolinensis and other garden birds.] < *Rod and Gun*, vi, July 3, 1875, p. 215.

1875. Cooper, J. G. Notes on Californian Thrushes [of the subgenus Hylocichla]. < *Am. Nat.*, ix, No. 2, Feb., 1875, pp. 114–116.

1875. Greenwood, E. C. Occurrence of the Mocking-Bird [Mimus polyglottus] in Massachusetts. < *Am. Sportsman*, v, 1874–5, Mar. 13, p. 370.

Note added by R. Deane to the effect that this specimen, which was exhibited to the *Nuttall Ornithological Club*, was the fourth taken near Boston, within a few months.

1875–76. Ingersoll, E. The Nesting of [certain Turdidæ of North] American Birds. I[–IV.]. < *Forest and Stream*, v, Dec. 16, 1875, p. 291; Dec. 23, 1875, p. 308; Dec. 30, 1875, p. 323; Jan. 13, 1876, p. 356.

I. *Turdus migratorius.* II. *Turdus nævius.* III. *Turdus mustelinus.* IV. *Turdus pallasi.*

1876. Coues, E. Letters on Ornithology. No. 1.—The Oregon Robin [Turdus nævius]. < *The Chicago Field*, June 24, 1876, fig.

Account of habits, with a figure of the head.

This series of "Letters", each with its own subhead, runs through several issues of the paper, as follows:—No. 1, June 24, 1876; No. 2, Aug. 12, 1876; No. 3, Aug. 26, 1876; No. 4, Oct. 7, 1876; No. 5, Nov. 18, 1876; No. 6, Dec. 2, 1876; No. 7, Dec. 9, 1876; No. 8, Dec. 16, 1876; No. 9, Dec. 23, 1876; No. 10, Dec. 30, 1876; No. 11, Jan. 6, 1877; No. 12, Jan. 13, 1877; No. 13, Feb. 13, 1877; No. 13 [*bis* = 14], Mar. 17, 1877; No. 15, July 14, 1877; No. 16, July 21, 1877; No. 16 *bis*, Dec. 15, 1877; No. 17, Feb. 2, 1878; No. 18, June 29, 1878; No. 19, Apr. 26, 1879; No. 20, May 10, 1879; No. 21, May 17, 1879; No. 22, May 24, 1879; No. 23, June 9, 1879; No. 24, June 14, 1879; No. 25, June 21, 1879; No. 26, June 28, 1879; No. 27, July 5, 1879; No. 28, July 12, 1879; No. 29, July 19, 1879; No. 30, July 26, 1879.—They give popular accounts of various North American Birds, in certain cases from advance sheets of the "Birds of the Colorado Valley," and are for the most part illustrated with original woodcut figures. They are cited in this Bibliography collectively by the major head under "North America", and also individually by minor heads under the several families to which they respectively pertain.

1876. Coues, E. Letters on Ornithology. No. 7.—The Catbird [Mimus carolinensis]. < *The Chicago Field*, Dec. 9, 1876, fig.
Biographical, from advance sheets of the *Birds of the Colorado Valley*.

1876. Gray, A. F. Strange nesting places [of Turdus migratorius]. < *Forest and Stream*, vi, July 6, 1876, p. 355.

1876. Harting, J. E. [Turdus migratorius in England.] < *The* (London) *Field*, Dec. 23, 1876, p. —.
Not seen.

1876. [Ingersoll, E.] The Crissal Thrasher [Harporhynchus crissalis]. < *Forest and Stream*, vii, Oct. 12, 1876, p. 148.
Quotations from letters from Capt. Charles Bendire, concerning breeding habits of the species in Arizona.

1876. Morris, R. T. A Plea for the Robin [Turdus migratorius]. < *Forest and Stream*, vi, June 29, 1876, p, 337.

1876. Ragsdale, G. H. Late appearance of the Mocking-bird [Mimus polyglottus, in Cooke Co., Texas]. < *Forest and Stream*, v, Jan. 20, 1876, p. 372.

1876. Wooldridge, G. Mocking-bird [Mimus polyglottus] food. < *Forest and Stream*, vii, Oct. 5,1876, p. 132.

1876. ———. A Cat Whipped by Robins [Turdus migratorius]. < *Rod and Gun*, vii, Feb. 5, 1876, p. 294.

1877. Bailey, H. B. Occurrence for the first time in England of the Robin (Turdus migratorius). < *Bull. Nutt. Ornith. Club*, ii, No. 4, Oct., 1877, p. 110.
Prepared from Harting's articles, *The Field*, Dec 23, 1876, and the *Zoologist*, Jan., 1877.

1877. Boardman, G. A. Melanosis [in Turdus migratorius]. < *Forest and Stream*, ix. Sept. 6, 1877, p. 86.

1877. [Young, Rawlings.] Song of the Mocking Bird [described and analyzed]. < *Forest and Stream*, ix, Aug. 16, 1877, p. 24.

1877. Harting, J. E. [Turdus migratorius in England.] < *Zoologist*. —, Jan., 1877, p. —.
Not seen.

1877. Ingersoll, E. The Domestic Life of the Brown Thrasher [Harporhynchus rufus]. < *Forest and Stream*, viii, Apr. 12, 1877, p. 145.
An original and complete account.

1877. Ridgway, R. On Geographical Variation in Turdus migratorius. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, pp. 8, 9.
Turdus propinquus, subsp. n., p. 9.

1877. Treat, *Mrs.* M. Our Mocking-bird [Mimus polyglottus]. < *Forest and Stream*, viii, Mar. 29, 1877, pp. 112, 113.

1878. Allen, J. A. Persistency in Nest-building by a Pair of City Robins [Turdus migratorius]. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 103, 104.

1878. Anon. [Ingenuity of Turdus migratorius.] < *The Country*, ii, May 18, 1878, p. 57.

1878. Beal, F. E. L. Birds' Nests in Unusual Places. < *Forest and Stream*, x, Mar. 21, 1878, p. 118.
Nest of *Turdus migratorius* on the ground.

1878. Brewer, T. M. Wilson's Thrush [Turdus fuscescens], with Spotted Eggs and nesting on a Tree. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 193.

1878. Coues, E. Melanism of Turdus migratorius. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 47, 48.

1878. Deane, R. Deadly Combat between an Albino Robin [Turdus migratorius] and a Mole. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 104.
Covering a narrative of the occurrence from Miss Maria L. Audubon, granddaughter of J. J.

1878. Fisher, A. K. Robins' [Turdus migratorius] Eggs, Spotted. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 97.

1878. Huyler, A. I. A Case of Instinct [of Turdus migratorius]. < *Science News*, i, No. 2, Nov. 15, 1878, p. 32.

1878. Gray, A. F. Robin [Turdus migratorius] Nesting Upon the Ground. < *Forest and Stream*, ix, Jan. 31, 1878, p. 489.

1878. [Grinnall, G. B.] An Albino Thrush [Turdus pallasi]. < *Forest and Stream*, x, Feb. 28, 1878, p. 55.

1878. Ingersoll, E. The nesting habits of rare American thrushes [Harporhynchus]. < *The London Field*, li, Apr. 20, 1878, p. 453.

Treating all the United States species of the genus excepting *H. rufus*.

1878. Lawrence, G. N. Characters of a supposed new Species of South-American Thrush [Turdus brunneus]. < *Ibis*, 4th ser., ii, Jan., 1878, p. 57, pl. i.

N. B. There is more than one *Turdus brunneus* of earlier authors. The present belongs to the section of the genus including *T. leucomelas*, *albiventris*, &c. If a proper *Turdus*, stet Turdus lawrencii, nobis, hoc loco, species renovata.

1878. Lyle, D. A. The Robin's [Turdus migratorius] Food. < *Am. Nat.*, xii, No. 7, July, 1878, pp. 448–453.

Detailed account of the enormous quantity and variety of food consumed by a captive Robin.

1878. Read, M. C. Variations in Robins' [Turdus migratorius] Nests. < *Science News*, i, No. 2, Nov. 15, 1878, p. 32.

1878. Turner, H. W. Nesting of the Robin [Turdus migratorius] on the Ground. < *Am. Nat.*, xii, No. 1, 1878, p. 53.

1879. Allen, J. A. Odd Behavior of a Robin [Turdus migratorius] and a Yellow Warbler. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 178–182.

The curious case given by Miss O. C. Coolidge is here amplified, with account of similar doings of *Dendrœca æstiva*.

1879. Anon. Nesting of Swainson's Thrush (Turdus swainsoni). < *The Oölogist*, iv, No. 12, summer, 1879 (an extra number), pp. 93–95, cut.

In Herkimer County, N. Y. Extended original observations, with cut of nest and eggs.

1879. Boardman, G. A. Interesting Note on Albinism. < *Forest and Stream*, xiii, Aug. 7, 1879, p. 525.

Note on albino *Hirundo horreorum*, and on melanotic *Turdus migratorius*.

1879. Coues, E. Le Conte's Thrasher (Harporhynchus lecontii). < *The Oölogist*, iv, No. 12, summer, 1879 (extra number), pp. 99, 100.

Quoted from the *Birds of the Colorado Valley*, pt. i, 1878, p. 72.

1879. [Coolidge, *Miss* O. C.] A Robin's [Turdus migratorius] Persistency. < *Watertown* (N. Y.) *Daily Times*, May 24, 1879.

In tapping for several days at a window. See full account of the same case, and another instance of the same behavior in the case of *Dendrœca æstiva*, *Bull. Nutt. Ornith. Club.*, iv, 1879, p. 178.

1879. Henshaw, H. W. Remarks upon Turdus pallasi and its Varieties. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 134–139.

Carefully distinguishing *T. nanus* and *T. auduboni* from *T. pallasi* proper.

1879. Holmes, Mary E. Another Lesson from the Robin [Turdus migratorius]. < *Science News*, i, No. 10, Mar. 15, 1879, pp. 155, 156.

Referring to M. C. Read's article of similar title (*tom. cit.*, pp. 117, 118), the writer gives her own experiences with a Robin in captivity.

1879. Holzappel, J. [Occupation by Turdus mustelinus of a nest of Cardinalis virginianus] < *The Oölogist*, v, No. 1, July, 1879, p. 3.

1879. [Ingersoll, E.] Nest and Eggs of the Texas Thrasher (Harporhynchus rufus var. longirostris.) < *The Oölogist*, iv, No. 10, May, 1879, pp. 75, 76, pl. (not numbered), fig. 3.

Editorial extracts from the published observations of G. B. Sennett and J. C. Merrill.

1879. "ISSAQUENA." Are Robins [Turdus migratorius] Topers? < *Forest and Stream*, xiii, Sept. 18, 1879, p. 646.

Further discussion from *tom. cit.*, p. 554. The writer considers that the birds gorge themselves with the China berries and become helpless from this cause.

1879. LOCKWOOD, S. Rob: A Bird Biography [Turdus migratorius]. < *Am. Nat.*, xiii, No. 4, Apr., 1879, pp. 359-366.

Very full and entertaining account of the habits of a pet Robin.

1879. LUM, S. K. Notes on the Thrushes [Turdidæ] of Washington Territory. < *Am. Nat.*, xiii, No. 10, Oct., 1879, pp. 629-632.

Field-notes on the habits and local distribution of various species.

1879. RAGSDALE, G. H. Olive-backed Thrush (Turdus swainsoni) in Texas. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 116.

1879. READ, M. C. A new Lesson from the Robin [Turdus migratorius]. < *Science News*, i, No. 8, Feb. 15, 1879, pp. 117, 118.

With reference to the migrations of the bird.

1879. SENNETT, G. B. The Curve-billed Thrush (Harporhynchus curvirostris), its Nest and Eggs. < *The Oölogist*, iv, No. 10, May, 1879, pp. 74, 75, pl. —, f. 2.

From advance sheets of the paper in *Bull. U. S. Geol. and Geogr. Surv. Terr.*, v, No. 2, Sept. 6, 1879.

1879. ST. CLAIR, [J. W.] St. Clair on the Robin [Turdus migratorius]. < *Forest and Stream*, xiii, Oct. 30, 1879, p. 765.

1879. STAPLES, E. F. Odd. < *Forest and Stream*, xii, June 12, 1879, p. 385.

A Robin (*T. migratorius*) with the voice of a Whip-poor-will.

1879. T[AYLOR], N. A. Are Robins [Turdus migratorius] Topers? < *Forest and Stream*, xiii, Aug. 14, 1879, p. 544. (See p. 646.)

Denying statement in *Forest and Stream* by J. W. St. Clair (*tom. cit.*, p. 765) that Robins are intoxicated by feeding on the berries of the China tree (*Melia azedarach*).

1879. W. B. A Few Questions Discussed. < *Forest and Stream*, xiii, Sept. 11, 1879, p. 625. (See pp. 544, 646, 765.)

Slightly ornithological. Explains apparent "intoxication" of Robins by stating that they become choked by a China berry of unusual size.

Hydrobatidæ.

1816. V[IEILLOT, L. P.]. Aguassière, Hydrobata. < *Nouv. Dict. d'Hist. Nat.*, i, 1816, pp. 219, 220.

Hydrobata albicollis, g. sp. n., p. 219. (*Hydrobata* also in *Analyse*, 1816. Not *Hydrobates*, Boie, 1822.) Antedated by *Cinclus* Bechst, *Naturg. Vög. Deutschl.*, iii, 1802, p. 808. The latter name is now in almost universal employ. (Not *Cinclus* Gray, *G. of B.*, iii, 549, ex Moehr., 1752, which = *Strepsilas* Illiger, 1811.)

1829. THOMPSON, T. Birds presented to the Hull Literary and Philosophical Society. < *Loudon's Mag. Nat. Hist.*, ii, 1829, pp. 301, 302.

A note on *Sternus cinclus* (*Cinclus aquaticus*), which the writer conceives should be written *S.* "*cinctus*", because he can make nothing of the word *cinclus!*

1832. "SUBSCRIBER." The Term Cinclus, as the Epithet in the Name of the Species of Bird called Sturnus Cinclus. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 734.

1833. FALK, V. Bidrag till Strömstarens [Cinclus aquaticus] Natural-Historia. < *Tidsk. f. Jägare o. Naturf.*, ii, 1833, pp. 671–673.

1834. BONAPARTE, C. L. [Cinclus unicolor = C. pallasii.] < *Oken's Isis*, Bd. xxvii, 1834, p. 813.

Auszug aus *Philos. Mag.*, ix, 1831, p. —.

1834. "T. G." The Water Ouzel [Cinclus aquaticus]. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 540–542.

1834. "TIRO." The Water Ouzel [Cinclus aquaticus]; its Song and Nest. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 542, 543.

1835. MORRIS, F. O. Notices of the Affinities, Habits, and certain Localities of the Dipper (Cínclus aquáticus). < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 374–376.

1835. WATERTON, C. The Dipper [Cinclus aquaticus]. < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 514–516.

Controversy with F. O. Morris (*op. cit.*, p. 375) respecting the queer notion that Waterton had, that birds do not oil their feathers.

1844. JERDON, A. Notes on [the habits of Cinclus aquaticus] the Dipper. < *Zoologist*, ii, 1844, p. 450.

1847. ANON. Habits of the Water-Ouzel [Cinclus aquaticus]. < *Zoologist*, v, 1847, p. 1875.

From 'Wild Sports in the Highlands,' p. 198.

1849. OLANS, J. Note on the Water Ouzel (Cinclus aquaticus). < *Zoologist*, vii, 1849, p. 2526.

1856. BREHM, [C.] L. Ueber die Wasserschwätzer, Cinclus, Bechst. < *Naumannia*, vi, 1856, pp. 178–189.

Beschreibung, Aufenthalt, Betragen, Nahrung, Fortpflanzung, Feinde, Jagd und Fang, Nutzen. 6 spp.—*C. aquaticus*, *C. medius*, *C. meridionalis*, *C. peregrinus*, *C. septentrionalis*, *C. melanogaster*.

1856. COUCH, J. Particulars of some of the Habits of the Dipper (Cinclus aquaticus). < *Zoologist*, xiv, 1856, pp. 5250, 5251.

1856. GLOGER, C. W. L. Was den Wasserschwätzer [Cinclus aquaticus] stellenweise ganz vertreibt und die Gebirgs-Bachstelze [Motacilla] ebenda selten macht. < *J. f. O.*, iv, 1856, pp. 502–504.

1856. STEVENSON, H. Note on the Common Dipper (Cinclus aquaticus) near Norwich. < *Zoologist*, xiv, 1856, p. 5061.

1857. MATHEWS, M. A. Velocity of the Flight of the Water Ouzel [Cinclus aquaticus; over 20 miles an hour.] < *Zoologist*, xv, 1857, p. 5791.

1857. Stevenson, H. Inquiry respecting the Plumage of the Common Dipper [Cinclus aquaticus]. < *Zoologist*, xv, 1857, p. 5751.

1858. Kinahan, J. R. On the subaqueous habits of the Water Ouzel (Cinclus aquaticus). < *Nat. Hist. Rev.* (*Pr. Soc.*), v, 1858, pp. 91–94.

1859. Brehm, [C.] L. Etwas über das königl. zoologische Museum zu Dresden. < *J. f. O.*, vii, 1859, pp. 470, 471.

Cinclus leucogaster brachycercus, *C. l. macrourus*, subspp. nn., p. 471, Siberia.

1859. Gould, J. On two New Species of Cinclus [C. cashmeriensis, C. sordidus]. < *P. Z. S.*, xxvii, 1859, pp. 493, 494.

1859. Smurthwaite, H. Curious Situation for a Dipper's [Cinclus aquaticus] Nest. < *Zoologist*, xvii, 1859, p. 6561.

1860. Gould, J. On two New Species of Cinclus. < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, p. 502.

From *P. Z. S.*, Dec. 13, 1859, pp. 493, 494, *q. v.*

1860. Homeyer, A. v. Ein Moment aus dem Leben eines Wasserschwätzerpaares [Cinclus aquaticus]. < *J. f. O.*, viii, 1860, pp. 301, 302.

1863. Saxby, H. L. Food of the Dipper (Cinclus aquaticus). < *Zoologist*, xxi, 1863, p. 8631.

1865. Alston, E. R. Habits of the Water Ouzel [Cinclus aquaticus]. < *Zoologist*, xxiii, 1865, pp. 9432, 9433.

1865. Crisp, E. On the Anatomy and Habits of the Water-Ousel (Cinclus aquaticus). *Proc. Zool. Soc.*, 1865, pp. 49–52.

This is an important and interesting contribution to the subject.

1865. Crisp, E. On the Anatomy and Habits of the Water-Ousel (Cinclus aquaticus). < *Ann. Mag. Nat. Hist.*, 3d ser., xvi, 1865, pp. 49–52.

From *P. Z. S.*, Jan. 10, 1865, pp. 49–52, *q. v.*

1867. Feilden, H. W. Nesting of the Dipper [Cinclus aquaticus]. < *Zoologist*, 2d ser., ii, 1867, pp. 755, 756.

1867. Hartlaub, G. [The original description of Cinclus leucogaster Eversm. believed to have been published in that part of the "Addenda ad Zoographiam Rosso-Asiaticam" of which the whole edition was destroyed by fire excepting a very few copies.] < *Ibis*, 2d ser., iii, 1867, p. 383.

1866. Rodd, E. H. Nesting of the Dipper [Cinclus aquaticus]. < *Zoologist*, 2d ser., i, 1866, pp. 268, 269.

1867. Tristram, H. B. [The Cinclus which breeds in the Pyrenees is C. melanogaster.] < *Ibis*, 2d ser., iii, 1867, pp. 466, 467.

1867. Salvin, O. [Note on Cinclus leucogaster Eversm.] < *Ibis*, 2d ser., iii, 1867, pp. 382, 383.

With reference to the publication of the name in *Tchihatcheff's Voy. Scient. dans l'Altaï Orient.*, 1845, p. 442. Cf. *Ibis*, 1867, pp. 118 and 383.

1867. Salvin, O. On the Genus Cinclus. < *Ibis*, 2d ser., 1867, iii, pp. 109–122, pl. ii.

This article is *facile princeps* among those treating of the present family, and remains the leading authority. The species and races are handled upon philosophical principles which were not usually applied to the solution of such questions at that date, and treated with synonymy, description, habitat, and much critical comment. Thirteen forms of the genus are recognized, arranged in five main stems, with four more "representative" branches, and four "local" twigs. These are: AQUATICUS, with races (aquaticus), albicollis, and melanogaster, and *cashmiriensis* and *leucogaster* as representative species; SORDIDUS, alone; PALLASI, with (pallasi), marila, and asiaticus as races; MEXICANUS, with *ardesiacus* (p. 121, pl. ii, sp. n.) as its representative species; and LEUCOCEPHALUS with leuconotus as its representative.

"We thus have five well-marked forms of *Cinclus*:—1. *Cinclus aquaticus*, which consists of three constant but nearly allied local races [1, *aquaticus*, 2, *albicollis*, 3, *melanogaster*] and two more distinct representative species [4, *cashmiriensis*, 5, *leucogaster*], all occupying different geographical areas; 2. [6] *Cinclus sordidus*, which seems to stand alone; 3. *Cinclus pallasi*, represented by three distinguishable races [7, *pallasi*, 8, *marila*, 9, *asiaticus*] occupying distinct districts; 4, *Cinclus mexicanus*, which is represented by two forms [10, *mexi-*

1867. Salvin, O.—Continued.

canus, 11, *ardesiacus*]; and 5. *Cinclus leucocephalus*, also represented by two members [12, *leucocephalus*, 13 *leuconotus*],—the total number of recognizable species being *thirteen*."

Reviewing the whole literature of the family, I make out the following list of nominal species, in alphabetical order, with the references:—

albicollis (Hydrobata), *Vieill.*, Nouv. Dict., i, 1816, p. 219..........S. Eur., Lebanon.
albiventris (Cinclus aquaticus var.), *Hempr. & Ehrenb.*, "Symb. Phys., 1820–25, Aves, fol. bb."=*albicollis*.
americanus (Cinclus), *Sw.*, Fn. Bor.-Am., ii, 1831, p. 173=*mexicanus* Sw.
aquaticus (Cinclus), *Bechst.*, Naturg. Vög. Deutschl., iii, 1802, p. 808...Cent. Europe.
aquaticus (Cinclus), *Tristr.*, Ibis, 1864, p. 436=*albicollis* V.
ardesiacus (Cinclus), *Salv.*, Ibis, 2d ser., iii, 1867, p. 121, pl. ii..............Veragua.
asiaticus (Cinclus), *Sw.*, Fn. Bor.-Am., ii, 1831, p. 174 ....Himalayan Asia.
bicolor (Hydrobata), *Vieill.*, ——?
brachycercus (Cinclus leucogaster var.), *Brehm*, J. f. O., 1859, p. 471=*leucogaster*.
cashmeriensis (Cinclus), *Gould*, P. Z. S., 1859, p. 494 ....Thibet.
cinclus (Sturnus), *Linn.*, Syst. Nat., i, 1766, p. 290=*melanogaster*, Br.
cinclus (Sturnus), *Gm.*, Syst. Nat., i, 1788, p. 803=*aquaticus* ×.
cinclus var. (Sturnus), *Pall.*, Zoog. R.-A., i, 1831, p. 426=*leucogaster?*
cinclus (Hydrobata), *L. Adams*, P. Z. S., 1858, p. 439=*cashmiriensis*.
europæus (Cinclus), *Steph.*, Shaw's G. Z., x, 1817, p. 313=*aquaticus* ×.
gularis (Turdus), *Lath.*, Ind. Orn. Suppl., 1802, pl. xl=*aquaticus* ×.
leucocephalus (Cinclus), *Tschudi*, Arch. f. Naturg., 1844, (1), p. 279...........Peru.
leucocephalus (Cinclus), *Lafr.*, Rev. Zool., 1847, p. 68=*leuconotus*.
leucogaster (Cinclus), *Eversm.*, "Add. ad Zoog. R.-A."; "Tchihatcheff's Voy., 1845, p. 442"; (*cf.* Ibis, 1867, pp. 117, 118, 382, 383) ....Siberia.
leuconotus, *Scl.*, P. Z. S., 1857, p. 274.....................................Ecuador.
macrourus (Cinclus leucogaster var.), *Brehm*, J. f. O., 1859, p 471=*leucogaster*.
maculatus (Cinclus), *Hodgs.*, "Zool. Misc., 1844, pp. 83, 73"=*asiaticus*.
marila (Hydrobata), *Swinh.*, "J. N. China Br. Roy. Asiat. Soc. 1859"; Ibis, 1860, p. 187..Formosa.
medius (Cinclus), *Brehm*, Naum., vi, 1856, 185=*aquaticus*.
melanogaster (Cinclus), *Brehm*, Lehrb. Eur. Vög., i, 1823, p. 289 ....N. Europe.
meridionalis (Cinclus), *Brehm*, Naum., vi, 1856, p. 186=*albicollis*.
mexicanus (Cinclus), *Sw.*, Philos. Mag., i, 1827, p. 368 ....N. America.
mortoni (Cinclus), *Towns.*, Narr., 1839, p. 337=*mexicanus*.
pallasii (Cinclus), *Temm.*, Man., i, 1820, p. 177; iii, 1835, p. 107 ....E. Asia, Japan.
pallasii (Cinclus), *Bp.*, Ann Lyc. N. Y., ii, 1826, p. 439=*mexicanus*.
pallasi (Cinclus), *Gould*, "Cent. B., pl. 24"=*asiaticus* Sw.
pallasi (Cinclus), *Swinh.*, Ibis, iv, 1863, p. 272=*marila* Swinh.
peregrinus (Cinclus), *Brehm.*, Naum., vi, 1856, p. 187=*melanogaster*.
rufipectoralis (Cinclus), *Brehm*, Naum., vi, 1856, p. 186=*albicollis*.
rufiventris (Cinclus aquaticus var.), *Hempr. & Ehrenb.*, "Symb. Phys., 1820–25," p. —, =*albicollis*.
rupestris (Cinclus), *Brehm*, Naum., vi, 1856, p. —=*albicollis*.
septentrionalis (Cinclus), *Brehm*, Lehrb. Eur. Vög., i, 1823, p. 287=*melanogaster* Br.
sordidus (Cinclus) *Gould*, P. Z. S., 1859, p. 494 ....Thibet.
tenuirostris (Cinclus), "*Gould*," *Bp.*, Consp. Av., i, 1850, p. 252=*asiaticus* Sw.
townsendii (Cinclus), "*Aud.*," *Towns.*, Narr., 1839, p. 340=*mexicanus*.
unicolor (Cinclus), *Bp.*, Zool. Journ., iii, 1827, p. 52=*mexicanus*.

1870. Gould, J. [Remarks on exhibition of some English specimens of Water-ouzels (Cinclus aquaticus).] < *P. Z. S.*, xxxviii, 1870, p. 384.

1871. Gurney, J. H., Jr. Dipper [Cinclus aquaticus] at Rye and Bridlington. < *Zoologist*, 2d ser., vi, 1871, p. 2848.

1874. Coues, [E.] The Dipper [Cinclus mexicanus]. < *Am. Sportsman*, 1874, p. 97, fig.

Figure and brief notice.

1878. [Fitch, E. H.] The Water Ouzel or American Dipper. (Cinclus mexicanus.) < *The Journ. of Sci.*, (Toledo, Ohio), 2d ser., No. 8, Nov., 1878, fig.

Popular biography of the bird, with a cut.

1878. Muir, J. The Humming-Bird [*i. e.*, Cinclus mexicanus!] of the California Water-Falls. < *Scribner's Monthly Mag.*, vol. xv, Feb., 1878, No. 4, pp. 545–554, figs.

Popular, with pretty but marvellous cuts.

Formicariidæ.

1792. Schrank, F. v. Paula. Beschreibung eines seltnen Vogels aus der Gattung der Würger [Lanius surinamensis]. < *Abh. einer Privatgesell. von Naturf. und Oekon. Oberdeutschl.*, 1ster Theil, 1792, pp. 95, 98, pl. vi.

Not seen—nor do I know that it belongs here. But there are no *Laniidæ* in Surinam, and I presume that some Formicarian is meant. *Cf. Meyer's Zool. Annalen*, i, 1794, pp. 56, 137.

1825. Lesson, R. P. Sur deux nouveaux genres d'oiseaux, Formicivora et Drymophila, . . .; par W. Swainson. . . . <*Féruss. Bull.*, 2e sect., vi, 1825, pp. 410–411.

Extr. du *Zool. Journ.*, ii, No. 6, Juin, 1825, pp. 145–154.

1825. Such, G. Descriptions of some new Brazilian species of the family Laniadæ [*i. e.*, Formicariidæ]. <*Zool. Journ.*, i, 1825, pp. 554–559, pll. suppl. 5–8.

Thamnophilus swainsonii, p. 556, pl. 5; *T. maculatus*, p. 557, pl. 6; *T. vigorsii*, p. 557, pl. 7, 8; *T. leachii*, p. 588; *T. ruficeps*, *Drymophila variegata*, p. 559.

1825. Swainson, W. The characters and descriptions of seven Birds belonging to the genus Thamnophilus. < *Zool. Journ.*, ii, 1825, pp. 84–93.

T. bicolor, p. 86; *T. cinnamomeus*, p. 87; *T. fasciatus*, p. 88; *T. torquatus*, p. 89: *T. naevius*, p. 90, vars. *ambiguus* and *pileatus*, p. 91; *T. ferrugineus*, p. 92.

1825. Swainson, W. On two new Genera of Birds, Formicivora and Drymophila, with Descriptions of several species. < *Zool. Journ.*, ii, 1825, pp. 145–154.

F. (p. 145) *maculata*, p. 147; *F. nigricollis*, p. 147; *F. brevicauda*, p. 148; *D.* (p. 149) *leucopus*, p. 150; *D. longipes*, *D. trifasciata*, p. 152; *D. atra*, p. 153.

1826. Less[on, R. P.]. Caractères et description de divers Oiseaux du genre Thamnophilus; par W. Swainson. . . . < *Féruss. Bull.*, 2e sec., vii, 1826, p. 108, 109.

Extrait du *Zool. Journ.*, ii, 1825, No. 5, p. 84–93.

1826. Less[on, R. P.]. Description de quelques espèces inédites de la famille des Laniadæ [*i. e.*, Formicariidæ], provenant du Brésil; par George Such. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 245, 246.

Extrait du *Zool. Journ.*, i, No. 4, Janvier 1825, p. 554–559.

1830. Such, G. Neue brasilische Laniaden [*i. e.*, Formicariidæ]. < *Oken's Isis*, Bd. xxiii, 1830, pp. 827–829.

Aus der *Zool. Journ.*, i, Nr. iv, 1825, pp. 554–559, *q. v.*

1830. Swainson, W. Zwey neue Vögel, Formicivora und Drymophila. < *Oken's Isis*, Bd. xxiii, 1830, pp. 845, 846.

Aus der *Zool. Journ.*, ii, 1825, pp. 145–154, *q. v.*

1830. Swainson, W. Charactere mehrerer Thamnophili. < *Oken's Isis*, Bd. xxiii, 1830, pp. 840, 841.

Aus der *Zool. Journ.*, ii, 1825, pp. 84–93, *q. v.*

1835. Ménétriés, E. Monographie de la Famille des Myiotherinae où sont décrites les espèces qui ornent le musée de l'Académie Impériale des Sciences. < *Mém. de l'Acad. Impér. Sci. St.-Pétersb.*, vi sér., vol. iii, pte. ii, (*Sci. Nat.*, i), 1835, pp. 443–543, pll. 1–15.

Myioturdus rex, p. 462. *M. ochroleucus*, p. 464. *M. marginatus*, p. 465, pl. 1. *M. tetema*, p. 466. *M. umbretta*, p. 468. *M. tinniens*, 469. *M. palikour*, sp. renom., p. 470. *M. lineatus*, p. 471. *Myrmothera nematura*, *M. longipes*, p. 474. *M. thamnophiloides*, p. 475. *M. gularis*, p. 476, pl. 2, f. 2. *M. axillaris*, p. 478. *M. unicolor*, sp. n., p. 480, pl. 2, f. 1. *Formicivora nigricollis*, p. 482, pl. 3, f. 1, 2. *F. duluzæ*, sp. n., p. 484, pl. 5, f. 2. *F. pileata*, p. 485. *F. rufimarginata*, p. 487. *F. ferruginea*, p. 488. *F. loricata*, p. 490, pl. 4, f. 1, 2. *F. strigilata*, p. 493. *F. maculata*, p. 494, pl. 5, f. 1. *F. malura*, p. 496. *F. rufa*, pl. 9, f. 1. *F. caerulescens*, p. 499, pl. 6, f. 1, 2. *F. melanaria*, sp. n., p. 500, pl. 7, f. c. *F. alapi*, p. 502. *F. domicella*, p. 503, pl. 7, f. 1, 2, and *b*. *F. atra*, p. 505. *F. maura*, sp. n., p. 506, pl. 7, f. *a*. *F. ardesiaca*, p. 507. *F. melanura*, sp. n., p. 508, pl. 8, f. 1, 2. *F. capistrata*, p. 509 (Asiatic!). *F. melanothorax*, p. 510 (Asiatic!). *F. pyrrhogenys*, p. 511 (Asiatic!). *F. epilepidota*, *grammiceps*, p. 512 (Asiatic!). *F. leucophrys*,

1835. Ménétriés, E.—Continued.

p. 513 (Asiatic!). *F. gularis*, p. 514 (Asiatic!). *Leptorhynchus* (g. n., p. 515) *guttatus*, sp. n., p. 516, pl. 10, f. 1. *L. striolatus*, p. 517, pl. 10, f. 2. *Oxypyga* (g. n., p. 519) *scansor*, sp. n., p. 520. pl. 11 [=*Sclerurus* Sw., 1827—*Anabatidæ*]. *Malacorhynchus* (g. n., p. 522) *cristatellus*, sp. n., p. 523, pl. 12 [=*Merulaxis* Less., 1830—*Pteroptochidæ*]. *M. rhynolophus*, p. 524. *M. albiventris*, sp. n., p. 525, pl. 13, f. 2. *M. speluncæ*, sp. n., p. 527, pl. 13, f. 1. *M. chilensis*, sp. renom., p. 527. *M. indigoticus*, p. 529. *Conopophaga leucotis*, p. 532. *C. dorsalis*, sp. n., p. 533, pl. 14, f. 2. *C. vulgaris*, sp. renom., p. 534, pl. 14, f. 1. *C. nigrogenys*, p. 536, pl. 15, f. 1. *C. melanogaster*, sp. n., p. 537, pl. 15, f. 2. *C. naevia*, p. 538.

1839. Lesson, R. P. Révision de la famille des Fourmilliers (Myiotherideæ). < *Revue Zoologique*, ii, 1839, pp. 135, 136.

1839. Lesson, R. P. Cadre spécifique des oiseaux de la famille des Myiothères. < *Revue Zoologique*, ii, 1839, pp. 225, 226.

31 genres.

1840. Bonaparte, C. L. Catalogue d'Oiseau du Mexique et du Pérou. < *Rev. Zool.*, iii, 1840, pp. 19, 20.

This is not the catalogue itself, but merely editorial notice of Bonaparte's lately new genus *Scolopacinus*, *P. Z. S.*, 1837, p. 119.

1840. Lafresnaye, [F.] de. Réponse de M. de La Fresnaye aux réflexions ornithologiques de M. Lesson. < *Revue Zoologique*, iii, 1840, pp. 130–132.

1840. Lesson, R. P. Réflexions ornithologiques. < *Revue Zoologique*, iii, 1840, pp. 97, 98.

Au sujet du genre *Ramphocænus* Vieill.

1842. Lafresnaye, F. de. [Ueber Myothera longirostris s. caudacuta.] < *Oken's Isis*, Bd. xxxv, 1842, p. 56.

Auszug aus d. *Guér. Mag. Zool.*, Bd. iii, 1833, pl. 10.

N. B. This title is misplaced. It should be on p. 531, *anteà*, (*Anabatidæ*).

1845. Hartlaub, G. Notes ornithologiques. < *Rev. Zool.*, viii, 1845, pp. 342, 343.

Sur le genre *Myrmornis*, établi par J. Hermann (*Tab. Affin. Anim.*, p. 188), en 1783; il serait donc contemporain avec *Formicarius* Bodd., 1783.

1849. Strickland, H. E. Holocnemis nævius, Gmelin. < *Jard. Contrib. Orn.*, 1849, p. 34, pl. xviii.

1853. Lafresnaye, F. de. Mélanges ornithologiques. < *Rev. et Mag. de Zool.*, v, 1853, pp. 337–340.

§ 1. La diagnostique de cinq espèces du genre *Thamnophilus*,—*TT. nævius*, *coerulescens*, *maculatus*, *atripileus* et *tenuipunctatus* (sp. n., p. 339). § 2. Sur l'oiseau de Paradis émeraude, (*Paradisea apoda*).

1854. Sclater, P. L. Descriptions of Six New Species of Birds of the Subfamily Formicarinæ. < *P. Z. S.*, xxii, 1854, pp. 253–255, pll. (Aves) lxx–lxxiv.

Myrmeciza leucaspis, p. 253, pl. lxx; *M. margaritata*, p. 253, pl. lxxi; *Hypocnemis melanolæma*, p. 254, pl. lxxii, f. 2; *H. melanosticta*, p. 254, pl. lxxiii; *Formicivora caudata*, p. 254, pl. lxxiv; *Pithys erythrophrys*, p. 255, pl. lxxii, f. 1, spp. nn.

1855. Sclater, P. L. Characters of six new species of the genus Thamnophilus. < *P. Z. S.*, xxiii, 1855, pp. 18, 19, pll. (Aves) lxxix–lxxxii.

T. transandeanus, *T. leucauchen*, pl. lxxiv, *T. albinuchalis*, p. 18; *T. melanonotus*, pl. lxxx, *T. nigrocinereus*, pl. lxxxi, *T. cæsius*, pl. lxxxii, p. 19.

1855. Sclater, P. L. Descriptions of some new Species of Ant-Thrushes (Formicariinæ) from Santa Fé di Bogota. < *P. Z. S.*, xxiii, 1855, pp. 88–90, pll. (Aves) xciv–xcviii.

Grallaria hypoleuca, p. 88; *G. modesta*, pl. xciv; *Chamæza mollissima*, pl. xcv; *Formicivora callinota*, pl. xcvi, p. 89; *Dysithamnus semicinereus*, pl. xcvii; *Pyriglena tyrannina*, pl. xcviii, p. 90.

1855. Sclater, P. L. A Draft Arrangement of the Genus Thamnophilus. < *Edinburgh New Philos. Journ.*, new series, i, 1855, pp. 226–249.

Systematic, synonymatic, descriptive synopsis of 39 spp., with critical comment, introduced by list of 14 doubtful species which have been referred to the genus. *T. ventralis*, p. 244, sp. n. Other lately new spp. were descr. by the writer, *P. Z. S.*, Jan., 1855, pp. 18, 19, *q. v.*

1855. SCLATER, P. L. A | Draft Arrangement | of the | Genus Thamnophilus, | (Vieillot.) | By | Philip Lutley Sclater, M. A., F. Z. S. | — | (From the Edinburgh New Philosophical Journal, New Series, April 1855.) | — | Edinburgh: | printed by Neill and Company. | — | MDCCCLV. 1 vol. 8vo. pp. 26.

Treating 39 spp. with synonymy, description, criticism, &c., after a general consideration of the Bush-shrikes, real or nominal.

1856. SCLATER, P. L. Descriptions of some new Species of Ant-Thrushes (Formicariinæ) from Santa Fé di Bogota. < *Ann. Mag. Nat. Hist.*, (2), xviii, 1856, pp. 57–59.

From *P. Z. S.*, June 12, 1855, pp. 88–90, *q. v.*

1856. SCLATER, P. L. Descriptions of Six New Species of Birds of the Subfamily Formicarinæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 63–65.

From *P. Z. S.*, Nov. 28, 1854, pp. 253–255, *q. v.*

1856. SCLATER, P. L. Characters of six new Species of the genus Thamnophilus. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 360–362.

From *P. Z. S.*, Jan. 23, 1855, pp. 18, 19, *q. v.*

1857. SCLATER, P. L. Characters of some apparently New Species of American Ant-Thrushes. < *P. Z. S.*, xxv, 1857, pp. 46–48.

Formicarius trivittatus, p. 46; *Conopophaga castaneiceps*, *Hypocnemis elegans*, p. 47; *Myrmeciza hemimelæna*, *Formicivora hæmatonota*, p. 48.

1857. SCLATER, P. L. Descriptions of Twelve New or Little-known Species of the South American Family Formicariidæ. < *P. Z. S.*, xxv, 1857, pp. 129–133, pl. (Aves) cxxvi.

Grallaria ferrugineipectus, *G. loricata*, p. 129; *Hypocnemis melanopogon*, *Formicivora melæna*, *F. urosticta* (pl., f. 1), p. 130; *F. brevicauda*, *F. hauxwelli* (pl., f. 2), *F. cinerascens*, p. 131; *Herpsilochmus pectoralis*, *Dysithamnus xanthopterus*, p. 132; *Thamnophilus melanothorax*, *T. melanoceps*, p. 133, spp. nn.

1857. SCLATER, P. L. Characters of some apparently New Species of American Ant-Thrushes. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, pp. 376–378.

From *P. Z. S.*, Mar. 10, 1857, pp. 46–48, *q. v.*

1857. SCLATER, P. L. Descriptions of Twelve New or Little-known Species of the South American Family Formicariidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, pp. 462–467.

From *P. Z. S.*, June 23, 1857, pp. 129–133, *q. v.*

1858. SCLATER, P. L. Descriptions of new species of Ant-wrens (Formicivorinae). < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, pp. 372–374.

From *P. Z. S.*, Apr. 27, 1858.

1858. SCLATER, P. L. Synopsis of the American Ant-birds (Formicariidæ). Part I. Containing the Thamnophilinæ. < *P. Z. S.*, xxvi, 1858, pp. 202–224, pll. (Aves) cxxxix, cxl; Part II. Containing the Formicivorinæ or Ant-Wrens < *tom. cit.*, pp. 232–254, pll. (Aves) cxli, cxlii; Part III. Containing the Third Subfamily Formicariinæ, or Ant-Thrushes < *tom. cit.*, pp. 272–289, pl. (Aves) cxliii.

Very full synonymy, characters, and distribution of all the species, with list of 22 spp. not recognized by the author. *Thamnophilus amazonicus*, p. 214, pl. cxxxix; *Pyrgiptila*, n. g., p. 220; *Myrmotherula* (g. n.) *multostriata*, p. 234, pl. cxli; *Formicivora erythrocerca*, p. 240, pl. cxlii; *Cercomacra* (n. g., p. 244) *nigricans*, p. 245; *Pyriglena maculicauda*, p. 247; *Hypocnemis schistacea*, p. 252; *Gymnocichla*, n. g., p. 274; *Myrmelastes* (g. n., p. 274) *plumbeus*, p. 274, pl. cxliii; *M. nigerrimus*, p. 275; *Grallaricula*, g. n., p. 283, figg., spp. nn.

1858. SCLATER, P. L. On Two Species of Ant-birds in the Collection of the Derby Museum, at Liverpool. < *P. Z. S.*, xxvi, 1858, pp. 540, 541.

Myrmeciza exsul, p. 540, sp. n. The other is *Dysithamnus olivaceus*.

1859. SCLATER, P. L. On Two Species of Ant-birds in the Collection of the Derby Museum, at Liverpool. < *Ann. Mag. Nat. Hist.*, 3d ser., iv, 1859, p. 151.

From *P. Z. S.*, Nov. 23, 1858, pp. 540, 541, *q. v.*

1859. SCLATER, P. L. On two new species of American Ant-Thrushes. < *Ann. Mag. Nat. Hist.*, 3d ser., iv, 1859, p. 239.

From *P. Z. S.*, May 11, 1858, pp. 274, 275—extracted from his full paper there, pp. 272-289, *q. v.*

1860. LAWRENCE, G. N. Descriptions of New Species of Birds of the Genera Myiarchus and Phlogopsis. < *Ann. Lyc. Nat. Hist. New York*, vii, 1860, pp. 284-286.

M. panamensis, p. 284; *Ph. McLeannani*, p. 285.

1865. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126-135.

The Formicarians here described are *Dysithamnus striaticeps*, p. 130; *D. rufiventris*, p. 131; *Myrmotherula albigula*, p. 131; *Myrmeciza stictoptera*, p. 132.

1866. LAWRENCE, G. N. Descriptions of Six New Species of Birds of the Families Hirundinidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 400-405.

The Formicarian is *Thamnophilus leucopygus*, p. 401, Panama.

1868. SCLATER, P. L. Descriptions of some New or little-known Species of Formicarians. < *P. Z. S.*, xxxvi, 1868, pp. 571-575, pl. xliii, woodc.

Thamnophilus nigriceps, *Neoctantes* (n. g.) *niger*, p. 571, woodc.; *Hypocnemis hypoxantha* (pl. xliii), *Heterocnemis simplex*, p. 573; *Conopophaga gutturalis*, p. 574, spp. nn., with list of 37 spp. of the family. In the author's collection 178 species of the family were represented by 381 specimens.

1869. SCLATER, P. L., *and* SALVIN, O. Descriptions of Six New Species of American Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicariidæ, Tyrannidæ, and Scolopacidæ. < *P. Z. S.*, xxxvii, 1869, pp. 416-420.

The Formicarians are *Gymnocichla chiroleuca*, p. 417, and *Grallaria princeps*, p. 418; with a list of six spp. of the latter genus.

1872. CABANIS, J. [Die Thamnophilen-Gattung Diallectes, nebst 2 neuen Arten (D. semifasciatus, D. granadensis).] < *J. f. O.*, xx, 1872, pp. 233, 234.

1874. PELZELN, A. v. [Letter relating to "Pithys rufigula Bodd" (cf. Ibis, 1873, 113); = Phæornis obscura (Gm.).] < *Ibis*, 3d ser., iv, Oct., 1874, pp. 461, 462.

1877. SCLATER, P. L. Description of two new Ant-birds of the Genus Grallaria, with a List of the known Species of the Genus. < *Ibis*, 4th ser., i, Oct., 1877, pp. 437-451, pll. viii, ix.

Many important additions to the group as given by him in *P. Z. S.*, 1858, pp. 202, 232, 272; see also *P. Z. S.*, 1868, p. 571. In 1842, Lafresnaye had given 9 spp.: in 1873, in the *Nomenclator Av. Neotrop.*, the author and Salvin gave 20. Here are 27 spp.; among them *G. haplonota*, p. 442, Venezuela, and *G. flavotineta*, p. 445, pl. ix, Antioquia, spp. nn. *G. ruficeps* figured on pl. viii. These are all treated with synonymy, diagnosis, habitat, and comment: they are divided into 4 sections—*Grallariæ squamigeræ*, *reges*, *uniformes*, *flammulatæ*. The genus is made to cover the following names: *Myioturdus* and *Myiotrichus* Boie, *Calobathris* and *Codonistris* Gloger, (*Handb. u. Hilfsb. d. Nat.*, 1842, pp. 304 and 303), and *Hypsibemon* Cab.

Tyrannidæ.

1817. GEOFFROY SAINT-HILAIRE, ÉT. Description d'un oiseau du Brésil, sous le nom de Tyran Roi. < *Mém. du Mus. d'Hist. Nat.*, iii, 1817, pp. 275–278.

Le Tyran huppé de Cayenne, pl. enlum., 289, devenu aujourd'hui la *Muscivora regia* (Gm.) ou *coronata* (Müll.).

1821. MAXIMILIAN, —. Ueber den Fliegenfänger mit verticalen Schwanz-Federn. Muscicapa Alector. < *Oken's Isis*, Jahrg. v, 1821, pp. 647–649.

Alectrurus tricolor, Vieill. Gal. Ois., p. 132.

1824. THUNBERG, C. P. De Genere Megarhyncho. Præs. C. P. Thunberg, Resp. O. A. Schærström, Gestr. Hels. Upsaleæ, 1824. 4°. pp. 6.

Opus ipsud nunquam vidi. Confer quod de hac parum cognita dissertatione edidit F. Heine, *J. f. O.*, 1859, pp. 337–346.

1826. SWAINSON, W. On the Tyrant Shrikes [Tyrannidæ] of America. < *Quart. Journ. Sci. Lit. and Arts, Roy. Inst.*, xx, 1826, pp. 267–285. (*Féruss. Bull.*, 2e sect. xiii, 1828, pp. 433–435. *Isis*, 1833, pp. 935, 936.)

Not seen.

1828. LESSON, [R. P.] Sur les Pie-Grièches tyrans [Tyrannidæ] de l'Amérique; par William Swainson. . . . < *Féruss. Bull.*, 2e sect., xiii, 1828, pp. 433–435.

Précis de cette monographie: *Edinb. Journ. Sci.*, No. 40, pp. 267–285.

1833. SWAINSON, [W.] Swainson über die Tyrannen-Würger in America. < *Oken's Isis*, Jahrg. 1833, pp. 935, 936.

Auszug aus d. *Quart. Journ. Sci. Roy. Inst.*, xx, 1826, pp. 267–285.

Diagnostik von 18 Arten *Tyrannus*: *TT. sulphuratus*, *pitangua*, *audax*, *crinitus*, *calcaratus* n., *crassirostris* n., *vociferans* n., *intrepidus*, *griseus*, *crudelis* n., *leucotis* n., *cinereus*, *rufescens* n.?, *ambulans* n., *nengeta* Marc., *savana*, *longipennis* n.

1837. LAFRESNAYE, F. DE. Observations sur le Roitelet omnicolor, et sur le mélanisme ou la variété noire chez les Oiseaux de proie. (Mém. Soc. Acad. de Falaise, 1835.) < *L'Institut*, v, No. 217, 1837, pp. 230, 231.

Pas vues moi-même; le titre tiré de la *Bibl.* de Carus et Engelm.—Voir *Isis*, 1837, pp. 842, 843. (*Regulus omnicolor* Vieill. = *R. azaræ* Licht. = *Cyanotis azaræ* Gray.)

1837. LA FRESNAYE, [F.] DE. Regulus unicolor [sc. omnicolor] aus Brasilien. < *Oken's Isis*, Bd. xxx, 1837, pp. 842, 843.

Auszug aus: *L'Institut*, 1837, Nr. 217.

1843. BAIRD, W. M., *and* BAIRD, S. F. Descriptions of two Species, supposed to be new, of the Genus Tyrannula Swainson, found in Cumberland County, Pennsylvania. < *Proc. Acad. Nat. Sci. Phila.*, i, 1843, pp. 283–286.

T. flaviventris, p. 283; *T. minima*, p. 284.—This is the first scientific paper ever published by S. F. Baird.

1844. BAIRD, W. M., *and* BAIRD, S. F. Descriptions of two species, supposed to be new, of the genus Tyrannula, (Swainson,) found in Cumberland County, Penn. < *Sillim. Am. Journ. Sci.*, xlvi, 1844, pp. 273–276.

T. flaviventris, *T. minima*; already described, *Proc. Phila. Acad.*, i, 1843, pp. 283–286.

1844. LAFRESNAYE, F. DE. Mélanges ornithologiques. [iii.] < *Revue Zoologique*, vii, 1844, pp. 321–325.

Sur le *Tyrannus monachus* du docteur Hartlaub.

1844. LAFRESNAYE, F. DE. Sur une nouvelle espèce d'oiseau de la Nouvelle Grenade décrite par M. Hartlaub sous le nom de Vireo versicolor, dans la Revue de 1843, P. 289. < *Revue Zoologique*, vii, 1844, pp. 46, 47.

Considérée comme appartenant au genre *Pachyrhynchus* Sw., *Pachyramphus* Gray. Note sur l'adoption par M. Hartlaub du genre *Myiobius* Gray.

1844. [LAFRESNAYE, F. DE.] G. Conophaga. Vieill. C. ruficeps Lafr. < *Guér. Mag. de Zool.*, 2e ser., année 1844, Oiseaux, pp. 1, 2, pl. 51.

Todirostrum ruficeps, Lafr., *R. Z.*, 1843, p. 291 (*Euscarthmus*).

1846. LAFRESNAYE, F. DE. Essai d'une monographie du genre Todirostre de Lesson (Traité d'ornit.). < *Revue Zoologique*, ix, 1846, pp. 360–365.

13 esp.; *Todirostrum flavifrons*, *T. plumbeiceps*, 361; *T. furcatum*, *T. palpebrosum*, p. 362; *T. spiciferum*, *T. squamæcrista*, p. 363; spp. nn.

1847. GAMBEL, W. [Exhibition of an albino specimen of the Wood Pewee (Muscicapa (*i. e.*, Contopus) virens.)] < *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, p. 278.

1848. LAFRESNAYE, F. DE. Sur les genres Attila, Lesson, et Dasycephala Swainson. < *Revue Zoologique*, xi, 1848, pp. 39–48.

Attila, 6 spp. *A. flammulatus*, p. 47, sp. n.

1849. [JARDINE, W.] Taenioptera alpina, Jardine [n. sp.]. < *Jard. Contrib. Orn.*, 1849, p. 47, pl. xxi.

1850. STRICKLAND, H. E. Elænia linteata, Strickland [sp. n.]. < *Jard. Contrib. Orn.*, 1850, p. 121, pl. lxiii.

1851. LAFRESNAYE, F. DE. Sur deux nouvelles espèces de Tyrans d'Amérique. < *Rev. et Mag. de Zool.*, iii, 1851, pp. 470–476.

Saurophagus rufipennis, p. 471; *Scaphorhynchus mexicanus*, p. 473.

1851. SCLATER, P. L. On two new species of Birds of the genus Tænioptera. < *P. Z. S.*, xix, 1851, pp. 193, 194, pll. (Aves) xli, xlii.

T. erythropygia, pl. xli, *T. striaticollis*, pl. xlii; p. 193.

1852. LAWRENCE, G. N. Description of a new species of Tyrannus [cassini]. < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 39, 40, pl. iii, fig. 2. (Read June 3, 1850.)

1852. LAWRENCE, G. N. Descriptions of New Species of Birds, of the Genera . . . Tyrannula [cinerascens, p. 121] Swainson, . . . < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 121–123. (Read Sept. 8, 1851.)

Other spp. here descr. are a *Toxostoma* and a *Plectrophanes*: title is to be found in full in N. Am. part of this Bibl.

1852. STRICKLAND, H. E. V.—On Two Species of Todirostrum. < *Jard. Contrib. Orn.*, 1852, pp. 41, 42, pl. lxxxv.

T. granadense Hartl., ?—*T. multicolor*, sp. n.

1853. DES MURS, O. Notice sur les Lanius pitangua et sulphuratus de Linné. < *Rev. et Mag. de Zool.*, v, 1853, pp. 3–8.

L. pitangua L. (*P. E.* 212) = *Scaphirhynchus pitangua* Strickl. *L. sulphuratus* Gm. (*P. E.* 249 et 296) = *Saurophagus sulphuratus* Sw. *Cf. op. cit.*, p. 63.

1853. KAUP, J. [J.] Uebersicht des Genus Cnipolegus, Boie. < *J. f. O.*, i, 1853, pp. 29, 30.

Behandelt 5 Arten, nebst Synonymik und Artkennzeichen. Cf. *J. f. O.*, 1859, pp. 329–337.

1853. LAFRESNAYE, F. DE. [Note sur l'article de M. Des Murs (R. M. Z., Jan., 1853, p. 3,) sur les Lanius pitangua et sulphuratus de Linné.] < *Rev. et Mag. de Zool.*, v, 1853, pp. 63, 64.

1853. SCLATER, P. L. On two new species of Birds of the genus Tænioptera. < *Ann. Mag. Nat. Hist.*, 2d ser., xii, 1853, pp. 213, 214.

From *P. Z. S.*, June 10, 1851, pp. 193, 194.

1855. SCLATER, P. L. On a New Species of the Genus Todirostrum of Lesson [T. nigriceps.] < *P. Z. S.*, xxiii, 1855, pp. 66, 67, pl. (Aves) lxxxiv.

With synopsis of 5 other species. The second figure of the plate is *T. spiciferum.*

1856. SCLATER, P. L. On a New Species of the Genus Todirostrum of Lesson. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, p. 428.

From *P. Z. S.*, March 27, 1855, pp. 66, 67.

1857. SCLATER, P. L. On Three New Species of the genus Todirostrum. < *P. Z. S.*, xxv, 1857, pp. 82–84, pl. (Aves) cxxv.

Todirostrum calopterum, p. 82; *T. capitale*, *T. exile*, p. 83. List of 16 other spp. known to him, and of 6 more which rest on other good authority.

1857. SCLATER, P. L. On Three New Species of the genus Todirostrum. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, pp. 382, 383.

From *P. Z. S.*, May 12, 1857, pp. 82–84.

1857. SCLATER, P. L. Description of a new species of Pachyrhamphus [albo-griseus]. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, p. 398.

From *P. Z. S.*, April 28, 1857, p. 78.—N. B. This title should be under *Cotingidæ*, p. 590.

1857. SCLATER, P. L. On a [lately] new Genus of Birds from Mexico. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, p. 470.

From *P. Z. S.*, July 14, 1857, p. 203; the bird is *Camptostoma imberbe*, the description of which is extracted to form a special paper, from a paper of wider scope, occupying pp. 201-207 of the *P. Z. S.*

1858. BRYANT, H. [Remarks on the Habits of Muscicapa (*i. e.*, Empidonax) acadica and M. flaviventris.] < *Proc. Boston Soc. Nat. Hist.*, vi, 1858, p. 430.

1858. SCLATER, P. L. On a new species of Platyrhynchus [Coronatus] from the Rio Napo, in the Republic of Ecuador. < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, p. 316.

From *P. Z. S.*, Jan. 26, 1858, p. 71.

1859. HEINE, F. Eine wenig bekannte Dissertation Thunberg's „De genere Megarhyncho.“ < *J. f. O.*, vii, 1859, pp. 237-346.

Very complete commentary. The chars. of Thunberg's 8 spp. are reproduced, followed by a bibliography of the genus and of *M. pitangua*, *M. chrysocephalus* and *M. mexicanus*.

1859. HEINE, F. Das Genus Cnipolegus Boie. < *J. f. O.*, vii, 1859, pp. 329-337.

Full synopsis of 6 spp. *C. anthracinus*, "Cab." p. 334, sp. n. Cf. *J. f. O.*, 1853, pp. 29, 30.

1859. SCLATER, P. L. Descriptions of New Species of the American family Tyrannidæ. < *P. Z. S.*, xxvii, 1859, pp. 40-46.

Attila citriniventris, p. 40, with synopsis of 7 spp. of the genus; *Myiodynastes luteiventris* Bp., *Myiod. nobilis*, p. 42, with list of 6 spp. of *Myiodynastes*; *Contopus mesoleucus*, *C. sordidulus*, p. 43, with list of 6 spp. of *Contopus*; *Mitrephorus phæocercus*, p. 44; *Pyrocephalus mexicanus*, p. 45; *Elainia placens*, *Mionectes assimilis*, p. 46.

1859. SCLATER, P. L. A List of the Tyrant-birds [Tyrannidæ] of Mexico, with description of some new species. < *Ibis*, i, 1859, pp. 436-445, pl. xiv.

Classification and position of the group; synonymatic and geographical synopsis of 43 spp. *Empidonax brachytarsus*, p. 441; *Cyclorhynchus cinereiceps*, p. 443; *Todirostrum schistaceiceps*, spp. nn. Pl. represents *Camptostoma imberbe* (fig. 1), and *Mitrephorus phæocercus* (fig. 2).

1860. SCLATER, P. L. Description of a New Tyrant-bird of the genus Elainea [E. riisii] from the Island of Saint Thomas, West Indies. < *P. Z. S.*, xxviii, 1860, pp. 313, 314.

1860. SCLATER, P. L. Description of a New Tyrant-bird of the genus Elainea [E. riisii], from the Island of Saint Thomas, West Indies. < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, pp. 439, 440.

From *P. Z. S.*, June 12, 1860, pp. 313, 314.

1860. SCLATER, P. L. Descriptions of New Species of the American Family Tyrannidæ. < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, pp. 422-424.

From *P. Z. S.*, Jan. 25, 1859, pp. 40-46, *q. v.*

1861. HEINE, F. Ueber Myiozetetes icterophrys n. sp. < *J. f. O.*, ix, 1861, pp. 197, 198.

1861. PHILIPPI, [R. A.], *and* LANDBE[C]K, [L.] [Noticias sobre cuatro especies del jénero Pepoaza d'Orb. (Agriornis Gould), i sobre el modo de vivir de las dos especies chilenas de Dasycephala.] < *Anal. Univ. Chile*, xix, Nov., 1861, pp. ——652.

The above is a putting together of two subheads of a paper of wider scope, describing various new Peruvian birds, among them *Dasycephala albicauda*, p 618. The title is introduced here on account of its special bearing on *Tyrannidæ*.

1861. SCLATER, P. L. Index generis Elaineæ ex familia Tyrannidarum additis novarum specierum diagnosibus. < *P. Z. S.*, xxix, 1861, pp. 406-408, pl. xli.

Index Elaineæ generis 17 specierun, adjectis synonymis, locis. *E. semipagana*, p. 406; *E. pallatangæ* (tab. lxi); *E. subplacens*, p. 407; *E. implacens*, p. 408, spp. nn.

1862. SCLATER, P. L. On Two New Species of Tyrant-birds from Ecuador. < *P. Z. S.*, xxx, 1862, p. 113.

Ochthoëca citrinifrons, *Mecocerculus gratiosus*.

1862. SCLATER, P. L. On Two New Species of Tyrant-birds from Ecuador. < *Ann. Mag. Nat. Hist.*, 3d ser., x, 1862, p. 313.

From *P. Z. S.*, Mar. 25, 1862, p. 113, *q. v.*

1864. PHILIPPI, R. A., *and* LANDBECK, L. De las Muscisaxicolas Sud-Americanas. < *Anal. Univ. Chile*, xxv, Set. de 1864, pp. 418–439.

This is a subhead of an article of more extended scope. It appears in German in *Arch. f. Naturg.*, 1865, Bd. i, pp. 74–106, *q. v.* The authors treat of 15 spp. of the genus, among which *M. cinerea*, p. 422; *M. rubricapilla*, p. 429; *M. flavivertex*, p. 434; and *M. nigricans*, p. 436, are described as new. *Cf.* Cab., *J. f. O.*, 1860, p. 249, note; Scl., *Ibis*, 1865, p. 59.

1865. BRYANT, H. [Remarks on the occurrence of Tyrannus verticalis at "Plympton," Me. (*i. e.*, Pembroke, Me.), in October.] < *Proc. Boston Soc. Nat. Hist.*, x, 1865, p. 96.

1865. LAWRENCE, G. N. Descriptions of new species of Birds of the Families Paridæ, Vireonidæ, Tyrannidæ, and Trochilidæ, with a note on Myiarchus Panamensis. < *Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 37–39.

Myiarchus venezuelensis, p. 38.

1865. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126–135.

The Tyrannines here described are *Empidonax flavescens*, p. 133, and *Contopus lugubris*, p. 134.

1865. PHILIPPI, R. A., *and* LANDBECK, L. Monographie der südamerikanischen Muscisaxicolinen. < *Arch. f. Naturg.*, 1865, Bd. i, pp. 74–106.

This is a subtitle of an article of more extended scope, which originally appeared in Spanish in *Anales Univ. Chile*, xxv, 1864, pp. 418–439, *q. v.* The 15 species treated are *MM. albifrons*, *cinerea*, *maculirostris*, *mentalis*, *rubricapilla*, *rufiventris*, *flavivertex*, *nigrifrons*, *striaticeps*, *frontalis*, *capistrata*, *brunnea*, *flavinucha*, *albilora*, *albimentum*.

Among them are four species from the Cordilleras of Chili not described by previous authors, namely: *M. cinerea*, p. 80; *M. rubricapilla*, p. 90; *M. flavivertex*, p. 98; and *M. nigrifrons*, p. 101.—Cf. *Ibis*, 1866, pp. 56–59, and *Zool. Rec.* for 1865, pp. 106, 107.

1866. BURMEISTER, H. [Extract from a letter relating to certain Tyrannidæ of Buenos Ayres.] < *P. Z. S.*, xxxiv, 1866, p. 2.

List of ten or twelve species.

1866. LAWRENCE, G. N. Descriptions of Six New Species of Birds of the Families Hirundinidæ, Formicaridæ, Tyrannidæ and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 400–405.

The Tyrant is *Empidonax pectoralis*, p. 402, Panama.

1866. SCLATER, P. L. Note on the Species of the genus Muscisaxicola. < *Ibis*, 2d ser., ii, 1866, pp. 56–59.

With special reference to those described by Philippi and Landbeck (*Arch. Naturg.*, 1865, pp. 74–109), making some important criticisms, and giving the diagnoses of 9 species of the genus.

1868. CABANIS, J. Neue Arten der südamerikanischen Gattung Empidochanes, im Berliner Museum. < *J. f. O.*, xvi, 1868, pp. 194–196.

E. euleri, p. 195; *E. altirostris*, *E. argentinus*, p. 196.

1869. HUDSON, W. H. [Extract from a Letter respecting Lichenops perspicillatus.] < *P. Z. S.*, xxxvii, 1869, pp. 432, 433.

1869. RIDGWAY, R. A True Story of a Pet Bird. < *Am. Nat.*, iii, 1869, pp. 309–312.

Account of the habits of *Tyrannus verticalis* in semi-domestication.

1869. SCLATER, P. L. Note on the species of the Genus Hirundinea, belonging to the family Tyrannidæ. < *Ibis*, 2d ser., v, 1869, pp. 195–198, pl. v.

Synonymatic, diagnostic, critical; 3 spp. are discriminated: *H. ferruginea* (Gm.), *H. bellicosa* (V.) and *H. rupestris* (Max.). Pl. v, fig. 1, *H. bellicosa*; fig. 2, *H. ferruginea*; fig. 3, *H. rupestris*.

1869. SCLATER, P. L., *and* SALVIN, O. Descriptions of Six New Species of American Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicariidæ, Tyrannidæ, and Scolopacidæ. < *P. Z. S.*, xxxvii, 1869, pp. 416–420.

The new Tyrant is *Contopus ochraceus*, p. 419.

1870. Sclater, P. L. Descriptions of three apparently new Species of Tyrant-birds of the Genus Elainea, with Remarks on other known Species. < *P. Z. S.*, xxxviii, 1870, pp. 831–835, woodcc.

Elainea gigas, p. 831, fig. 1, p. 832; *E. fallax*, p. 832, fig. 2, p. 833; *E. pudica*, p. 833, fig. 3, p. 834. With synopsis of 16 spp. of the genus.

1871. Lawrence, G. N. Description of New Species of Birds of the Families Troglodytidæ and Tyrannidæ. < *Proc. Acad. Nat. Sci. Phila.*, 1871, pp. 233–236.

The Tyrannines here described are: *Myiozetetes grandis*, p. 234, Tumbes, Peru; *Empidonax atrirostris*, p. 234, Venezuela?; and *Myiarchus yucatanensis*, p. 235, Yucatan (= *M. mexicanus* Lawr., *Ann. Lyc. N. Y.*, ix, p. 202, nec Kaup).

1871. Sclater, P. L. Notes on the Types of Tyrannula mexicana of Kaup and Tyrannula barbirostris of Swainson. < *P. Z. S.*, xxxix, 1871, pp. 84, 85.

1. *T. mexicana*, Kaup, *P. Z. S.*, 1851, 51 = *Myiarchus cooperi* Bd., *B. N. A.*, 1858; *M. mexicanus* Bd. = *M. cinerascens* Lawr.—2. *Tyrannula barbirostris* Sw., *Phil. Mag.*, 1827, p. 367, is West Indian, not Mexican, and = *Blacicus tristis* of Gosse.

1871. Sclater, P. L. Remarks on the Species of the Genera Myiozetetes and Conopias, belonging to the family Tyrannidæ. < *P. Z. S.*, xxxix, 1871, pp. 751–756.

8 spp. of *Myiozetetes*, 3 of *Conopias*, the former quite fully treated.

1872. Abbott, C. C. Occurrence of the Scissor-tail Flycatcher [Milvulus forficatus] in New Jersey. < *Am. Nat.*, vi, 1872, p. 367.

1872. Brewer, T. M. [Occurrence of Empidonax pusillus in Wisconsin.] < *Proc. Boston Soc. Nat. Hist.*, xiv, 1872, pp. 303, 304.

1872. Coues, E. Occurrence of Couch's Flycatcher [Tyrannus melancholicus couchi] in the United States. < *Am. Nat.*, vi, 1872, p. 493.

1872. Coues, E. Studies of the Tyrannidæ.—Part I. Revision of the Species of Myiarchus. < *Proc. Acad. Nat. Sci. Phila.*, xxiv, 1872, pp. 56–81.

No more published.—Monographic; giving synonymy and characters of 9 spp. and 6 subspp., with much criticism. The author enters at some length into the general characters of the group, laying down several formal propositions applicable to the case, as well as the arbitrary rules which may govern one in the distinguishing between species, varieties, and synonyms. "With *Myiarchus* are united *Kaupornis*, *Blacicus*, and *Myionax*. Five supposed species are unknown to the author, who gives the history and synonymy of the remaining nine:—1. *M. validus*; 2. *M. crinitus*, with three varieties, α. *crinitus*, β. *irritabilis* = *erythrocercus*, Scl. & Salv. (*Zool. Rec.*, iii, p. 83), *mexicanus* and *yucatanensis*, Lawr., γ. *cooperi* (*Zool. Rec.*, viii, p. 58); 3. *M. cinerascens*; 4. *M. tyrannulus* = *panamensis* and *venezuelensis*, Lawr. (*Zool. Rec.*, ii, p. 107); 5. *M. phæocephalus*; 6. *M. lawrencii* = *rufimarginatus*, and *nigricapillus*, Cab.; 7. *M. nigriceps*; 8. *M. stolidus*, with three varieties, α. *stolidus* = *dominicensis*, Bryant, β. *phœbe* = *lucaysiensis* and *bahamensis*, Bryant, γ. *antillarum*; 9. *M. tristis*." (From *Zool. Rec.*)

1872. Hudson, W. H. Notes on the Habits of the Churinche (Pyrocephalus rubineus). < *P. Z. S.*, Nov. 5, 1872, pp. 808–810.

An interesting biography.

1872. Lockwood, S. The Kingbird [Tyrannus carolinensis] and Bee Martin. < *Am. Nat.*, vi, 1872, pp. 769, 770.

Occupation by *Tyrannus carolinensis* of a nest of *Progne subis*.

1872. Sclater, P. L. [Exhibition of a Nest of the Tijereta (Milvulus tyrannus), containing eggs of Molothrus bonariensis.] < *P. Z. S.*, 1872, pp. 862, 863.

1873. A[llen], J. A. Revision of the American or Tyrant Flycatchers. < *Am. Nat.*, vii, 1873, pp. 35–38.

Extended review of E. Coues's "Studies of the Tyrannidæ, Part I" (*Proc. Acad. Nat. Sci. Phila.*, 1872, pp. 56–81).

1873. Bendire, C. Nest, Eggs and Breeding Habits of the Vermilion Flycatcher (Pyrocephalus rubineus var. Mexicanus). < *Am. Nat.*, vii, 1873, pp. 170, 171.

1873. Gentry, T. G. Observations on Nests of Sayornis fuscus. < *Proc. Acad. Nat Sci. Phila.*, xxv, 1873, pp. 292–294.

An extended account of deviations from the usual style of nest-building.

1873. HERSEY, J. L. Bees and Kingbirds [Tyrannus carolinensis]. < *Am. Nat.*, vii, 1873, p. 434.

Note from the *American Bee Journal*, to the effect that *Tyrannus carolinensis* eats bees.

1873. HERSEY, J. L. Bees and King Birds [Tyrannus carolinensis]. < *Am. Sportsman*, ii, 1873, p. 166; see also *ibid.*, iii, 1873, p. 51.

From *American Bee Journal; Tyrannus carolinensis* eats the drone hive-bees.

1873. MERRIAM, C. H. The Olive-sided Flycatcher [Contopus borealis, in New York]. < *Am. Nat.*, vii, 1873, p. 750.

Notes on habits; continued, *op. cit.*, viii, 1874, p. 309.

1873. SCLATER, P. L. Note on the Genus Ornithion of Hartlaub. < *P. Z. S.*, 1873, pp. 576–578.

Synopsis of 4 spp. of this genus, with which *Camptostoma* Scl. and *Myiopatis* Cab. are considered synonymous. See especially Lawrence, *Ibis*, 1876, p. 497.

1874. BREWER, T. M. The Olive-sided Fly Catcher [Contopus borealis]. < *Am. Sportsman*, iv, 1874, p. 198.

Denies the allegation that it is a "rare" species in New England.

1874. CABOT, J. E. The Olive-sided Flycatcher [Contopus borealis]. < *Am. Nat.*, viii, 1874, p. 240.

Memorandum of the original discovery of the speceis in Massachusetts.

1874. DEANE, R. Olive-sided Flycatcher [Contopus borealis]. < *Am. Nat.*, viii, 1874, pp. 308–309.

Field-notes.

1874. EDITORIAL. [Alleged occurrence of Tyrannus dominicensis on Long Island.] < *Forest and Stream*, ii, July 23, 1874, p. 373.

1874. HALL, F. W. The Mycharchus [*i. e.*, Myiarchus] crinitus. < *Forest and Stream*, iii, Dec. 3, 1874, p. 261.

1874. LAWRENCE, G. N. Descriptions of Two New Species of Birds of the Families Tanagridæ and Tyrannidæ. < *Ann. Lyc. Nat. Hist. N. Y.*, xi, July, 1874, pp. 70–72.

The Tyrannine here described is *Myiarchus flammulatus*, p. 71, from Tehuantepec, Mexico.

1874. MERRIAM, C. H. The Olive-sided Flycatcher [Contopus borealis]. < *Am. Nat.*, viii, 1874, p. 309.

Further (*op. cit.*, vii, 1873, 750) field-notes.

1874. MORRIS, R. T. The Crested Fly-catcher [Myiarchus crinitus]. < *Forest and Stream*, ii, May 14, 1874, p. 213.

1875. BAIRD, S. F. [Note of the occurrence of Tyrannus verticalis in Maryland, near Washington, D. C.] < *Ann. Rep. Smithson. Inst. for* 1874, 1875, p. 32.

The original notice of the occurrence. The capture was made by P. L. Jouy; see his Catalogue of the Birds of the District of Columbia, in *Field and Forest*, ii, No. 9, 1877, pp. 154–156, and No. 10, 1877, pp. 178–181.

1876. "BRIDGEPORT." Cats vs. Birds. < *Rod and Gun*, vii, Feb. 19, 1876, p. 329.

King-birds whipping a cat. Compare p. 294.

1876. HENSHAW, H. W. On two Empidonaces, traillii and acadicus. < *Bull. Nutt Ornith. Club*, i, No. 1, Apr., 1876, pp. 14–17.

With special reference to differences in their geographical distribution, nests, and eggs. The subject is well handled, and the author's remarks have been established by later experiences.

S. F. Baird was the first to fix the species of our smaller Flycatchers with any satisfactory degree of precision. This he did in 1858; since which time, no material modification has been established among the N. Am. species of *Empidonax*. The history, however, of the habits of these birds, especially of their geographical distribution, nesting, and eggs, has been much involved. Little reliance can be placed on the accounts given by Wilson, Nuttall and Audubon; and even since 1858, there have been several mistakes made in the writings of Allen, Brewer and Coues, with reference to the distribution of *acadicus* in New England, and to the nests and eggs of all four of the eastern species. Late papers in the *Nuttall Bulletin*, however, have at length cleared up the confusion; and no one should presume to write on the habits of birds of this genus without consulting the present paper by Henshaw, and the several others in the *Nuttall Bulletin* by Purdie, Osborne, Batchelder and Coues, cited beyond in this bibliography.

1876. LAWRENCE, G. N. Note on Muscipeta incanescens, Wied. <*Ibis*, 3d ser., vi, Oct., 1876, pp. 497, 498.

Wied's type, now in Amer. Mus. Nat. Hist. New York, examined and found to be very different from *Ornithion imberbe*, which Sclater (*P. Z. S.*, 1873, p. 576) had united with it.

1876. PURDIE, H. A. The Nest and Eggs of Traill's flycatcher [Empidonax trailli], as observed in Maine. <*Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, pp. 75, 76.

1877. "G. G. H., JR." The great crested flycatcher. Myiarchus crinitus—Calamis [*i. e.*, Cabanis]. <*Forest and Stream*, ix, Aug. 23, 1877, p. 44.

Observations on nidification.

1877. "GUYON" [ ]. Migration of Kingbirds [Tyrannus carolinensis]. <*Forest and Stream*, viii, May 17, 1877, p. 224.

1877. JUDSON, E. Z. C. A Plea for the King Bird [Tyrannus carolinensis]. <*Forest and Stream*, ix, Aug. 9, 1877, p. 5.

Protection afforded to farm-yard by *Tyrannus carolinensis* through its enmity to hawks.

1877. [SCLATER, P. L., *and* SALVIN, O.] Lawrence on a new Pitangus [gabbii]. <*Ibis*, 4th ser., i, Oct., 1877, p. 481.

Notice of the paper in *Am. Lyc. N. Y.*, xi, Nov., 1876, pp. 288–290.

1877. WHITE, W. H. King Birds [Tyrannus carolinensis] and Bees. <*Forest and Stream*, ix, Oct. 4, 1877, p. 186.

Kingbirds insatiable devourers of honey-bees.

1878. ALLEN, J. A. Late Capture of the Yellow-bellied Flycatcher [Empidonax flaviventris] in Massachusetts. <*Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 101, 102.

1878. ANON. The fork-tailed fly-catcher. Milvulus Tyrannus (L.) Bp. <*Familiar Science and Fanciers' Journ.*, i (new series), Feb., 1878, p. 30. Illustrated.

1878. [FITCH, E. H.] The Wood Pewee [Contopus virens]. <*The Journ. of Sci.* (Toledo, Ohio), 2d ser., i, No. 2, May, 1878; cut.

Popular biography, with a figure.

1878. INGERSOLL, E. The Linnean Society. <*The Country*, i, Apr., 20, 1878, p. 371, See vol. ii, p. 9.

Secretary's report of meeting; many facts concerning nidification of *Tyrannidæ*.

1878. INGERSOLL, E. Linnean Society. <*The Country*, ii, Apr. 27, 1878, p. 9.

Report of meeting, and letter from H. A. Purdie concerning breeding of *Empidonax traillí*.

1878. [INGERSOLL, E.] Linnean Society. <*Forest and Stream*, x, Apr. 25, 1878, p. 216. See p. 255.

Report of proceedings, and letter from H. A. Purdie in regard to breeding of *Empidonax trailli*.

1878. MERRILL, J. C. The Occurrence of Myiarchus crinitus var. erythrocercus, Sclat., at Fort Brown, Texas. <*Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 99, 100.

With an editorial note respecting priority of the discovery; and a note by T. M. Brewer on the eggs of the same bird.

1878. NICHOLAS, G. L. Perseverance of Pewees [(Sayornis fuscus) in nest-building]. <*Forest and Stream*, xi, Dec. 12, 1878, p. 379.

Nest of a pair of *Sayornis fuscus* rebuilt seven times in the same place in one season.

1878. OSBORNE, S. D. The Nesting of the Yellow-bellied Flycatcher (Empidonax flaviventris). <*Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 187, 188.

Confirming H. A. Purdie's description, *op. tom. cit.*, pp. 166–168, both as to situation and structure of the nest, and as to the eggs being spotted.

1878. PECKHAM, B. J. Nesting of Contopus virens. <*The Oölogist*, iv, No. 5, July, 1878, p. 34.

1878. PURDIE, H. A. Trail's Flycatcher [Empidonax trailli]. <*Forest and Stream*, x, May 9, 1878, p. 255. See p. 216.

1878. PURDIE, H. A. The Nest and Eggs of the Yellow-bellied Flycatcher (Empidonax flaviventris). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 166–168.

Important, being a careful description of an authentic nest and eggs. Much error and uncertainty had prevailed on this subject, even among the leading writers. Both Brewer and Coues had stated the eggs to be white, whereas they are well spotted.

1878. SCLATER, [P. L.] [Remarks on Exhibition of the type of Dicrurus marginatus Blyth, Ibis, 1865, p. 46, = Muscipipra vetula Licht.] < *P. Z. S.*, Mar. 19, 1878, p. 339.

1879. A[LLEN], J. A. Brewer on the Nests and Eggs of Empidonaces. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 232.

Notice of the paper in *Proc. Nat. Mus.*, ii, Apr., 1879, pp. 1–10.

1879. ANON. Nest and Eggs of Empidonax trailii. < *The Oölogist*, iv, No. 11, June, 1879, pp, 85, 86.

1879. BATCHELDER, C. F. Nesting of the Yellow-bellied Flycatcher (Empidonax flaviventris. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 241, 242.

Two cases detailed, with full description of the nests and eggs.

1879. BREWER, T. M. Notes on the Nests and Eggs of the eight North American Species of Empidonaces. < *Proc. U. S. Nat. Mus.*, ii, Apr. 29, 1879, pp. 1–10.

Measurements of all the specimens in the National Museum, in the Coll. T. M. B., and a few others, with descriptions of these, and of various nests. Eggs of *E. minimus*, *obscurus*, and *hammondi* normally white, unmarked; of *E. flaviventris* normally spotted, sometimes unmarked; of *E. trailli*, *acadicus*, *pusillus*, and *difficilis* normally strongly marked.

1879. [COUES, E.] The Nest of Empidonax minimus. < *Temperance Vidette* (newspaper of Terrell, Texas), Nov. 1, 1879.

Quoted from his *Birds of the Northwest*, 1874, p. 255.

1879. CUNNINGHAM, S. Nest of the Great-crested Flycatcher [Myiarchus crinitus]. < *The Oölogist*, iv, No. 8, Mar., 1879, p. 59.

1879. [GRINNELL, G. B.] Nests and Eggs of the Genus Empidonax. < *Forest and Stream*, xii, July 10, 1879, p. 444.

Notice of Dr. T. M. Brewer's paper on The Nests and Eggs of the Eight North American Species of *Empidonaces* in *Pr. U. S. Nat. Mus.*, ii, 1879, pp. 1–10.

1879. HAYWARD, R. A Spotted Egg of Empidonax minimus. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 124.

Identification of the specimen attested by W. Brewster.

1879. OSBORNE, S. D. Another Nest of the Yellow-bellied Flycatcher (Empidonax flaviventris). < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 240, 241.

1879. RIDGWAY, R. Descriptions of New Species and Races of American Birds, including a Synopsis of the Genus Tyrannus, Cuvier. < *Proc. U. S. Nat. Mus.*, i, 1878 (pub. May, 1879), pp. 466–486.

I. The greater part of the paper is occupied with this excellent monography of *Tyrannus*, in which the following species are recognized and fully treated, with synonymy, diagnosis, habitat, and criticism: *TT. magnirostris*, *rostratus*, *dominicensis*, *carolinensis*, *crassirostris*, *melancholicus* (β. *couchi*, γ. *satrapa*), *albigularis*, *apolites*, *niveigularis*, *verticalis*, *vociferans*, *luggeri* (n. sp., p. 481), and *aurantio-atrocristatus*.—II. *Lichenops perspicillatus*, β. *andinus*, p. 483; *Dacnis pulcherrima*, β. *aureinucha*, p. 484; *Parus rufescens*, β. *neglectus*, p. 485, subspp. nn.

Ampelidæ.

[NOTE.—Nearly all my titles on the genus *Ampelis* were given in *B. Col. Vall.*, i, 1878, pp. 453–459; and are not here reproduced. The family, as constituted by Gray, includes *Myiadestes* and *Phainopepla.*]

1834. HEARNE, J. [Letter on various Zoological Subjects relating to the Island of Hayti.] < *P. Z. S.*, ii, 1834, p. 25.

Note of a bird called the 'Musicien' (*Myiadestes elizabeth*).

1835. TREVELYAN, W. C. The Bohemian Waxwing, or Chatterer [Ampelis garrulus], living in a State of Domestication in England. < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 511, 512.

1835. TURNER, H. The Bohemian Waxwing, or Chatterer [Ampelis garrulus], . . . < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 511.

1835. ANON. The Bohemian Waxwing, or Chatterer [Ampelis garrulus] (p. 511.); the Appendages to its Wings vary in Number in different Individuals: an instance of this. < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 615.

From *The Carlisle Journal*, January, 1835.

1840. CLARKE, C. [Notes, contained in a letter, relating to a Bird called in Cuba 'The Musician'.] < *P. Z. S.*, viii, 1840, pp. 153, 154.

1845. LAFRESNAYE, F. DE. Sur le Ptilogonys nitens de Swainson, Hypotyme luisant, nob. < *Revue Zoologique*, viii, 1845, pp. 451, 452.

This note forms a part of one of the instalments of the "Mélanges Ornithologiques".

1858. SCLATER, P. L. Note on the Genus Cichlopsis of Cabanis. < *P. Z. S.*, xxvi, 1858, pp. 541–543.

Rectification of synonymy of *C. leucogonys.—Phainopepla*, g. n., p. 543.

1861. HEIBERG, P. V. Sidensvandsen [Ampelis garrulus]. < *Tidssk. Pop. Fremst, af Naturv.*, 2^en^ række, iii, 1861, pp. 297–301.

1866. "THE OLD BUSHMAN." The Waxwing [Ampelis garrulus], the Pine Grosbeak. and the Crossbills. < *The Intellectual Observer*, ix, 1866, pp. 345–352.

Interesting field-notes on the first named of these species.

1870. ALLEN, J. A. „Fugle efterstræbte af Frøer.“ < *Tiddsk. for Pop. Fremst. Naturv.* 4^e^ ser., ii, 1870, p. 80.

Proc. Bost. Soc. Nat. Hist., 1868, p. —.

1876. [INGERSOLL, E.] The Bohemian Waxwing [Ampelis garrulus]. < *Forest and Stream*, vi, Apr. 13, 1876, p. 148.

Observations in Minnesota of P. L. Hatch and Thos. S. Roberts.

1877. LAMB, W. F. Nest and Eggs of Townsend's Flycatcher [Myiadestes townsendi]. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 77, 78.

1877. ROWLEY, G. D. Phainoptila melanoxantha, Salvin. *Rowl. Orn. Misc.*, ii, pt. x, Oct., 1877, pp. 439–442, pl. lxxix.

This lately-described species is figured, with copy of the original article, and additional matter from A. Boucard.

1877. SALVIN, O. Description of a New Genus and Species of Oscines from Costa Rica [Phainoptila melanoxantha]. < *P. Z. S.*, Apr. 17, 1877, p. 367.

Provisionally placed near *Ptilogonys*, in *Ampelidæ*.

Cotingidæ.

1769. Vosmaer, A. Description | d'une belle | Grive d'Amerique [Cotinga cayana], | nommée | Quereiva, | Qui vient du | Bresil, | Et se conserve dans le Cabinet de | son altesse Sérénissime | Monseigneur le Prince d'Orange et de Nassau, | Stadhouder He're'ditaire, Gouverneur, Capi- | taine Ge'ne'ral et Amiral des Provinces-Unies | des Pais-Bas, &c. &c. &c. | Par | A. Vosmaer, | Directeur des Cabinets d'Histoire Naturelle & de Curiosités de S. A. S., Membre de | l'Academie Impériale, & Correspondant de l'Académie Royal des Sciences de Paris. | A Amsterdam, | Chez Pierre Meijer, M. DCC. LXIX. 4to. pp. 7. pl.

The bird here described is the *Cotinga cayanensis* of Brisson, ii, p. 344, pl. 34, f. 3, the *Quereiva* Buff. P. E. 624 = *Ampelis cayana* L.

1769. Vosmaer, A. Description | du | Coq-des-Roches | Americain [Rupicola crocea], | Oiseau | d'une merveilleuse beauté, très peu connu encore; apporté de | Surinam, | Pour le Cabinet de | son altesse Sérénissime | Monseigneur le Prince d'Orange et de Nassau, | Stadhouder He're'ditaire, Gouverneur, Capi- | taine Ge'ne'ral et Amiral des Provinces-Unies | des Pais-Bas, &c. &c. &c. | Par | A. Vosmaer, | Directeur des Cabinets d'Histoire Naturelle & de Curiosités de S. A. S., Membre de | l'Académie Impériale, & Correspondent de l'Académie Royal des Sciences de Paris. | A Amsterdam, | Chez Pierre Meijer, | M. DCC. LXIX. 4to. pp. 7, pl.

The bird here described is the *Cocq de Roche* Buff. P. E. 39; *Rupicola* Briss. iv, p. 437, pl. 34, f. 1 = *Pipra rupicola* L.

1823. Thunberg, C. P. Description d'un nouveau genre d'oiseaux [Cotinga]. < *Mém. Soc. Nat. Moscou*, vi, 1823, pp. 175–179.

Pas vue moi-même: le titre tiré de la *Bibl.* de Carus et Engelm.

1823. Thunberg, C. P. Ampelis, cujus novas species præs. C. P. Thunberg p. p., resp. O. Fr. Tullberg, Smol. Upsaliæ. 1823. 4to. pp. 4, 6.

Libellus haud mihi obvius.

1825. Swainson, W. On the genus Psaris of M. Cuvier, with an Account of two new Species. < *Zool. Journ.*, ii, 1825, pp. 354–357.

Ps. cristatus, p. 255; *Ps. niger*, p. 356, spp. nn.

1826. Desm . . . st. [Desmarest, A. G.] Description d'un nouveau genre d'oiseaux découvert dans le Brésil et nommé Cotinga, par C. P. Thunberg. . . . < *Féruss. Bull.*, 2^{e} sec., vii, 1826, p. 248.

Mém. de la Soc. Imp. des Sci. de Moscou, vi, p. 175.

1826. Lesson, [R. P.] Sur le genre Psaris de M. Cuvier, avec la description de deux espèces nouvelles; par William Swainson. . . . < *Féruss. Bull.*, 2^{e} sec., viii, 1826, pp. 442, 443.

Extrait du *Zool. Journ.*, ii, No 7, 1825, pp. 354–357, *q. v.*

1826. Selby, P. J. An Account of a new or fifth Species of the Genus Psaris [erythrogenys], Cuv. < *Zool. Journ.*, ii, 1826, pp. 483, 484.

1827. Lesson, R. P. Description d'une espèce nouvelle du genre Psaris, de M. Cuvier; par P. J. Selby. . . < *Féruss. Bull.*, 2^{e} sect., xii, 1827, p. 267.

Ps. erythrogenys, Selby; *Zool. Journ.*, ii, 1826, p. 483.

1828. Selby, P. J. Neue Gattung Psaris Cuv., . . . < *Oken's Isis*, Bd. xxi, 1828, pp. 943, 944.

Uebers. aus d. *Zool. Journ.*, ii, 1826, pp. 483, 484; *Ps. erythrogenys*.

1830. Swainson, [W.] Ueber die Sippe Psaris Cuv. < *Oken's Isis*, Bd. xxiii, 1830, p. 1038.

Uebers. aus d. *Zool. Jour.*, Bd. ii, Nr. vii, Oct., 1825, pp. 354–357.

1830. WAGLER, J. Revisio generis Pipra. < *Oken's Isis*, Bd. xxiii, 1830, pp. 926-943.
PP. ignicapilla, *lanceolata*, p. 931; *aurantia*, p. 935; *auricapilla*, p. 934; *perspicillata*, p. 935; *tyranulus* (sic), p. 940, spp. nn.—Expositio specierum 33, synonymis, descriptionibus et patriis redactarum, pp. 926-941.—Expositio brevior reliquarum specierum 17.

1832. CHILDREN, [J. G.] [On specimens of the Phytotoma bloxhami, Childr., collected by Mr. Cuming in Chili.] < *Proc. Comm. Sci. and Corr. Zool. Soc. Lond.*, pt. ii, 1832, p. 3.

1832. LAFRESNAYE, F. DE. Phytotome. Phytotoma, Molina, Daudin, etc. < *Guér. Mag. de Zool.*, 2e année, classe ii, notice v, pl. v.
Esquisse monographique sur ce genre. Pl. v, *Phytotoma rutila* V.

1835. CHILDREN, [J. G.] [Phytotoma bloxhami.] < *Oken's Isis*, Bd. xxviii, 1835, p. 365.
Aus *P. Z. S.*, 1832, p. 3.

1838. EYDOUX, [F.] *et* GERVAIS, [P.] Sur quelques particularités anatomiques du Phytotoma rara de Molina. < *Guér. Mag. de Zool.*, 8e année, 1838, classe ii, notice lxxxvi, pp. 1-4, pl. lxxxvi.

1839. LAFRESNAYE, F. DE. G. Cotinga. Ampelis. Lin. C. a plumes en lamelles. Ampelis lamellipennis. De Lafr. < *Guér. Mag. de Zool.*, 2e sér., année 1839, Oiseaux, pp. 1, 2, pl. 9.
C'est une *Cotinga*, du sous genre *Xipholena* Glog.

1841. PARZUDAKI, C. Manakin nouveau [Pipra candei], découvert par M. De Maussion Candé. < *Revue Zoologique*, iv, 1841, p. 306.

1842. LAFRESNAYE, F. DE. [Ueber Phytotoma.] < *Oken's Isis*, Bd. xxxv, 1842, p. 51.
Aus d. *Mag. de Zool.*, Jahrg. ii, 1832, Klasse ii, Artikel v, Taf. 5.

1843. DES MURS, O. Notice sur le genre ornithologique rupicola ou coq de roche et considérations oologiques. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1-10, pl. 37.
Pl. 37, l'œuf de *Rupicola peruviana*.

1843. GOUDOT, J. Note sur le nidification du Rupicola peruviana et de l'Eurypyga phalenoïdes. < *Revue Zoologique*, vi, 1843, pp. 1, 2.

1843. GOUDOT, J. Observations sur l'organisation et les habitudes du coq de roche péruvien (Pipra peruviana, Lath.), et du caurale (Ardea helias, Lin.). < *Guér. Mag. de Zool.*, 2e sér., année 1843, pp. 1-4, pll. 37, 38.
Pl. 37, œuf du *Rupicola peruviana*; pl. 38, œuf de *l'Eurypga phalenoïdes*.

1843. LAFRESNAYE, [F.] DE. G. Cotinga. Ampelis. L. C. a croissant. C. arcuata. De Lafresn. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 40.
Rev. Zool., 1843, p. 98. (*Pyrrhorhynchus*, Lafr., 1849.)

1843. LAFRESNAYE, [F.] DE. G. Cotinga. Ampelis. L. C. a poitrine d'or. A. aureopectus. De Lafr. < *Guér Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 39.
Rev. Zool., 1843, p. 68. (*Euchlornis* De Fil., 1846.)

1843. LAFRESNAYE, [F.] DE. G. Manakin. Pipra. Linné. M. chrysoptère. P. chrysoptera. De Lafr. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 44.
R. Z. 1843, p. 97. (*Masius* Bp., 1850.)

1843. PARZUDAKI, [C.] G. Manakin. Pipra. Linné. M. de Candé. Pipra Candei. Parzudaki. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. pl. 45.
Revue Zool., iv, 1841, p. 306. (*Chiromachœris* Cab., 1847.)

1844. EYDOUX, [F.] *and* GERVAIS, [P.] Anatomisches über Phytotoma. < *Oken's Isis*, Bd. xxxvii, 1844, p. 405.
Aus *Guér. Mag. de Zool.*, Jahrg. viii, 1838, Klasse ii, Notiz 86, taf. 86.

1847. LAFRESNAYE, [F.] DE. Sur le Ptilochloris arcuatus (Lanius arcuatus Cuv.), et les autres espèces du genre. < *Revue Zoologique*, x, 1847, pp. 182-185.

1847. PARZUDAKI, C. Description d'une nouvelle espèce du genre Iodopleurus [lege Iodopleura] [d'Isabelle; sic; c'est-à-dire isabellæ] (Lesson). < *Revue Zoologique*, x, 1847, p. 186.

Stet *Iodopleura isabellæ.*

1848. [JARDINE, W.] Tityra surinama, Linnaeus. < *Jard. Contrib. Orn.*, 1848, p. 62, pl. xi.

1849. HARTLAUB, G. Note monographique sur le sous-genre Pyrrhorhynchus. < *Rev. et Mag. de Zool.*, i, 1849, pp. 493–494, pl. 14, f. 1.

Cinq espèces. *Ampelis formosa*, sp. n., pl. 14, f. 1.

1850. SCHOMBURGK, R. Rupicola aurantia (Cuv.) < *Naumannia*, i, Heft ii, 1850, pp. 34–38.

Ein physioiogisch. Beitrag.

1850. WALLACE, A. R. On the Umbrella Bird (Cephalopterus ornatus), "Ueramimbé," L. G. < *P. Z. S.*, xviii, 1850, pp. 206, 207.

Description, habits, and distribution of this species; structure of the crest.

1851. WALLACE, A. R. On the Umbrella Bird (Cephalopterus ornatus), "Ueramimbé," L. G. < *Ann. Mag. Nat. Hist.*, 2d ser., viii, 1851, pp. 428–430.

From *P. Z. S.*, 1850, pp. 206, 207.

1851. SCLATER, P. L. V.—On a new species of Manakin [Pipra flavicollis]. < *Jard. Contrib. Orn.*, 1851, p. 143.

1852. CORNALIA, E. On a New Species of the Family of Ampelidæ [Euchlornis sclateri]. < *Jard. Contrib. Orn.*, 1852, p. 133, pl. ci.

1852. DEVILLE, E., *et* SCLATER, [P. L.]. Description d'une nouvelle espèce de Cotinga [porphyrolæma] provenant de l'expédition de MM. de Castelnau et Deville dans l'Amérique du Sud. < *Rev. et Mag. de Zool.*, iv, 1852, pp. 226, 227.

1853. CORNALIA, E. Note sur une nouvelle espéce du Genre Euchlornis [sclateri]. < *Rev. et Mag. de Zool.*, v, 1853, pp. 104–109, pl. 4.

E. sclateri, p. 107, pl. 4. Notice historique et critique du genre. Tableau synoptique des espèces.

1854. CORNALIA, E. Note sur une nouvelle espèce du genre Euchlornis [sclateri]. < *Bianconi's Repert. Ital. Stor. Nat.*, ii, 1854, p. 55.

Extrait de la *Rev. et Mag. de Zool.*, 1853, p. 107, pl. 4.

1857. GOULD, J. Descriptions of three new and very beautiful species of Birds, from Guatemala [Cotinga amabilis] and from the Island of Lombock. < *P. Z. S.*, xxv, 1857, pp. 64, 65, pl. (Aves) cxxiii.

Cotinga amabilis, p. 64, pl. cxxiii; *Halcyon fulgidus*, *Pitta concinna*, p. 65.

1857. GOULD, J. Descriptions of three new and very beautiful species of Birds, from Guatemala and from the Island of Lombock. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, pp. 380, 381.

From *P. Z. S.*, April 28, 1857, pp. 64, 65, *q. v.*

1857. SCLATER, P. L. Review of the species of the South American Sub-family Tityrinæ. < *P. Z. S.*, 1857, pp. 67–80, 2 woodcc.

The subfamily is composed of the two genera *Tityra* and *Pachyrhamphus*, the former with 6, and the latter with 16 spp. With *Tityra* are considered synonymous *Psaris*, Cuv., 1817, and *Erator*, Kaup, 1851. With *Pachyrhamphus* Gray, 1838 (*vice Pachrhynchus*, Spix, 1824) are considered synonymous *Bathmidurus*, Cab., 1847, *Chloropsaris*, Kaup, 1851, and *Platypsaris* and *Callopsaris* Bp., 1854.—The species are treated with synonymy, diagnosis, habitat and critical commentary. Wood-cuts show the wing-structure of each genus. *Pachyrhamphus albogriseus*, p. 78, sp. n.

1857. SCLATER, P. L. Description of a new species of Pachyrhamphus [albo-griseus]. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, p. 398.

From *P. Z. S.*, Apr. 28, 1857, p. 78.

1859. GOULD J. On the Members of the Genus Rupicola, and whether there be Two or more Species. < *P. Z. S.*, xxvii, 1859, pp. 99, 100.

R. sanguinolenta, p. 100, sp. n.

1860. Crisp, E. [Exhibition of specimens of the Cock of the Rock (Rupicola crocea)]. < *P. Z. S.*, xxviii, 1860, p. 98.

1860. Gould, J. On the Members of the Genus Rupicola, and whether there be Two or more Species. < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, p. 62.
From *P. Z. S.*, Feb. 8, 1859, pp. 99, 100.

1860. Sclater, P. L. Description of a New Species of Manakin [Pipra heterocerca] from Northern Brazil. < *P. Z. S.*, xxviii, 1860, pp. 312, 313.

1860. Sclater, P. L. Description of a New Species of Manakin [Pipra heterocerca] from Northern Brazil. < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, pp. 438, 439.
From *P. Z. S.*, June 12, 1860, pp. 312, 313.

1861. Eyton, T. C. Note on the Anatomy of Cephalopterus penduliger. < *Ibis*, iii, 1861, pp. 57, 58.

1861. Sclater, P. L. On a New Species of Bird of the Genus Lipaugus of Boié [L. subalaris]. < *P. Z. S.*, xxix, 1861, pp. 209–212.
With synopsis of 9 spp. of the genus, arranged in the 3 sections of *Lathria*, *Lipaugus*, and *Aulia*. (N. B. nomen generis Lipaugus nec Lipangus scribendum, scil. λείπειν deficere, αὐγὴ splendor.)

1862. Sclater, P. L. Note on Pipra deliciosa. < *Ibis*, iv, 1862, pp. 175–178, pl. vi.
Referred to genus *Machæropterus*; synonymatic synopsis of 4 spp. of this genus; and reprint from *P. Z. S.* of his remarks on its wing-structure.

1862. Sclater, P. L. On a New Species of Bird of the Genus Lipangus of Boié. < *Ann. Mag. Nat. Hist.*, 3d ser., x, 1862, p. 80.
From *P. Z. S.*, May 28, 1861, pp. 209–212.

1863. Sclater, P. L. On a New Species of the Genus Pipra [leucorrhoa] from New Grenada. < *P. Z. S.*, xxxi, 1863, pp. 63, 64, pl. x.

1865. Salvin, O. Note on the Costa-Rican Bell-bird (Chasmorhynchus tricarunculatus, Verreaux) and its allies. < *Ibis*, 2d ser., i, 1865, pp. 90–95, pl. iii.
With synonymatic and diagnostic synopsis of the 4 known spp. of the genus. The species named is figured.

1866. Sclater, P. L. Note on the Distribution of the Species of Chasmorhynchus. < *Ibis*, 2d ser., ii, 1866, pp. 406, 407.
Corrects some previous erroneously assigned localities; compares the distribution of the genus with that of *Galbula viridis* and its allies. Four species are treated. *Cf. Intellectual Observer*, Jan., 1867, pp. 401–408, on the same subject.

1866. Anon. Der Glockenvogel [Chasmorhynchus nudicollis]. < *Aus der Natur.*, xxxviii, oder n. F., xxvi, 1866, p. 783.
Grösstentheils nach Watertons „Wanderungen" mitgetheilt.

1867. Sclater, P. L. The Bell-Birds [Chasmorhynchus] of America. < *The Intellectual Observer*, x, 1867, pp. 401–408, 1 col. pl., one woodcut.
A popular account of these singular birds. The plate illustrates *C. nudicollis*.

1869. Sclater, P. L. [Note on Chasmorhynchus variegatus in British Guiana.] < *Ibis*, 2d ser., v, 1869, p. 462.

1870. Anon. Der Glockenvogel [Chasmorhynchus carunculatus]. < *Aus der Natur.*, lii, oder n. F., xl, 1870, p. 352.

1872. Zorn, J. [Eine Siesta am Irura.] < *Westerm. illustr. deutsche Monatshafte*, Juni, 1872, pp. ———, fig.
Fig. of *Cephalopterus ornatus*.

1878. Sclater, P. L. Revision of the Species of the Cotingine Genus Pipreola. < *Ibis*, 4th ser., ii, Apr., 1878, pp. 164–173, pl. vi.
Monography of 9 spp. regarded as "firmly established", with notice of two doubtful ones, one of these being *P. chlorolepidota*, on which Swainson originally established the genus. *Euchlorornis* Cab. & H., 1859, or *Euchlornis* Filippi, Mus. Med., 1847, = *Pyrorhynchus* Bp., 1854, or *Pyrrhorhynchus* Lafr., 1849, = *Pipreola* Sw., 1838. The nine spp. are *riefferi*, *melanolæma*, *viridis*, *formosa*, *frontalis* (pl. vi), *sclateri*, *aureipectus*, *jucunda*, *elegans*; none new.

Vireonidæ.

1843. [Lafresnaye, F. de.] G. Cyclarhis. Cyclarhis. Swainson. (Fam. Laniadae.) Gen. Laniagra, d'Orb. et Lafr. Tangara, Buff. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Ois., pp. 1–4, pl. 33.

Pl. 33, *C. nigrirostris* Lafr. (*R. Z.*, 1842, p. 133). Liste des trois espèces composant le genre.

1851. Cassin, J. Sketch of the Birds composing the genera Vireo, Vieillot, and Vireosylvia, Bonaparte, with a List of the previously known and descriptions of three new species. < *Proc. Acad. Nat. Sci. Phila.*, v, 1851, pp. 149–154, pll. x, xi.

Vireo, 5 spp.; *V. huttoni*, p. 150, pl. x, f. 1, sp. n.; *Vireosylvia*, 6 spp.; *V. flavoviridis*, p. 152, pl. xi; *V. philadelphica*, p. 153, pl. x, f. 2, spp. nn.

1851. Lafresnaye, F. de. Sur l'oiseau nommé par Brisson Tangara de Saint-Domingue, Tanagra Dominicensis, Tanagra Dominica, par Linné, figuré par Buffon, pl, enl. 156, f. 2, et dont Vieillot a fait son genre Esclave (Dulus), sous le nom de Dulus palmarum. < *Rev. et Mag. de Zool.*, iii, 1851, pp. 583–590.

1851. Strickland, H. E. On the Type of the genus Dulus, Vieill. < *Jard. Contrib. Orn.*, 1851, pp. 103, 104.

Tanagra dominica L., nec *Turdus palmarum* L. *Cf.* Lafr., *Rev. et Mag. de Zool.*, iii, 1851, pp. 583–590. (See Gray's *Handlist*, Nos. 5827 and 7025.)

1852. Lyman, T. [On the Breeding of the Yellow-breasted Chat (Icteria viridis) in New England.] < *Proc. Boston Soc. Nat. Hist.*, iv, 1852, p. 167.

1852. Woodhouse, S. W. Descriptions of new species of Birds of the genera Vireo [atricapilla, p. 60], Vieill., and Zonotrichia, Swains. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, pp. 60, 61.

1853. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Ortyx Stephens, Sterna Linn., and Icteria [longicauda, p. 4] Vieillot. < *Ann. Lyc. Nat. Hist. N. Y.*, vi, 1853, pp. 1–4.

1857. Brewer, T. M. [On the characters, habits and distribution of Vireosylvia philadelphica of Cassin.] < *Proc. Boston Soc. Nat. Hist.*, ii, 1857, pp. 108–111.

Including a letter from Th. Kumlein, of Wisconsin.

1860. Bryant, H. [Vireo bogotensis, sp. n.] < *Proc. Bost. Soc. Nat. Hist.*, vii, 1860, p. 227.

The description occurs in an untitled article which also treats of *Turdus minimus* Lafr.

1863. Lawrence, G. N. Descriptions of New Species of Birds of the Families Vireonidæ and Rallidæ. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 106, 107.

Vireo atripennis, p. 106, Sombrero. See especially Baird, *Rev. Amer. Birds*, p. 330.

1864. Brown, E. Occurrence of the Redeyed Flycatcher [Vireo olivaceus] in England. < *Zoologist*, xxii, 1864, pp. 8965–8967.

Extracted from the "Natural History of Tutbury", p. 385.

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Former (*P. Z. S.*, 1874, p. 427) is *Iora lafresnayei* Hartl., *R. Z.*, 1844, p. 401!

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Summary of its recorded occurrences there.

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The writer has apparently measured the quill from the carpal joint, giving dimensions much above those of the exposed portion of the feather.

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1879. BREWSTER, W. Notes upon the Distribution, Habits, and Nesting of the Black-capped Vireo (Vireo atricapillus). <*Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 99–103.

Being the whole history of the species to date, with very full descriptions of nest and eggs.

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A perfunctory editorial, written up to the very pretty colored plate, which illustrates a pair of the birds with their nest.

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Note of its habits.

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♀ in male plumage.—The following observations are extended and miscellaneous. Editorial note, pp. 371, 372.

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Chaunonotus, p. 487; *Hapalophus*, p. 489, genn. nn.

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In so far as *Lanius* is concerned, this paper gives a monographic sketch of the (too many) species recognized as North American by the author, these being no fewer than seven in number. Later authors have not succeeded in establishing more than two of these as valid.

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Habits of *Lanius ludovicianus:* from *Proc. Bost. Soc. N. H.,* xii, 1868, pp. 112, 113.

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A synoptical table of nine closely allied species is given, and their geographical distribution shown. *L. meridionalis,* p. 594; *L. minor,* p. 599, spp. nn. (*L. mollis,* Eversm., is accidentally omitted, *cf. Ann. N. H.,* (4), xvii, p. 78.)

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The manner in which it strikes its prey.

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Note on the close relationship of this supposed species to *C. ludovicianus.*

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1875. MAYNARD, C. J. The Loggerhead Shrike (Lanius ludovicianus) in Mass[achusetts]. < *Am. Sportsman*, v, 1874–5, Feb. 13, p. 313.

1875. SCHALOW, H. [Uber die geographische Verbreitung des Pallas'schen Würgers (Lanius major).] < *Ber. über d.* xxi. *Vers. d. deut. Orn.-Ges.*, 1875, pp. 13, 14.

1876. COUES, E. Letters on Ornithology. No. 6.—The Shrike, or Butcher Bird [Lanius borealis]. < *The Chicago Field*, Dec. 2, 1876, fig.

Brief biography of the species, with cut of the head.

1876. WILSON, T. J. The Butcher-bird in New York. < *Forest and Stream*, vii, Oct. 12, 1876, p. 148.

Lanius ludovicianus asserted to breed in New York State, and *L. borealis* supposed to.

1877. ANON. Butcher-Birds [(Lanius borealis), as enemies of the English sparrows]. < *Rod and Gun*, ix, Feb. 10, 1877, p. 291.

1877. "F. L. R." The Butcher Bird Once More [Lanius ludovicianus]. < *Forest and Stream*, viii, Mar. 1, 1877, p. 49.

1877. "J. F." The Shrike [in Indiana]. < *Forest and Stream*, vii, Jan. 25, 1877, p. 388.

1877. KEYES, F. H. The Butcher-Bird [(Lanius borealis) eating its prey alive]. < *Forest and Stream*, viii, Feb. 15, 1877, p. 17.

1877. SCHALOW, H. [Letter on a species of Lanius.] < *Ibis*, 4th ser., i, July, 1879, p. 398.

Maintaining the distinction of *L. phœnicuroides* Severtz. from *L. isabellinus* H. & E. Cf. *tom. cit.*, p. 164.

1878. COUES, E. History of the Shrike's names. < *Science News*, i, No. 1, Nov. 1, 1878, pp. 15, 16.

Quoted from his *Birds of the Colorado Valley*, pt. i, 1878, pp. 540–542.

1878. EATON, D. H. Nesting of the White-rumped Shrike (Collurio excubitoroides). < *Oölogist*, iv, No. 1, Mar., 1878, p. 2, 3.

A good account of the subject, from original observations made in New York State.

1878. SCHALOW, H. Das Subgenus Collurio Bp. < *J. f. O.*, Apr., 1878, pp. 133–156.

1879. BAGG, E., JR. The Loggerhead Shrike [Lanius ludovicianus] in Central New York. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 237.

1879. BREWER, T. M. The Loggerhead Shrike (Collurio ludovicianus) breeding in Northern New England. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 119.

1879. BREWER, T. M. The Great Northern Shrike [Lanius borealis] in New England. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 120, 121.

Controversial, arising from his mistaken reading of a passage in the "Birds of the Colorado Valley," the author of which appends a note pointing out the blunder.

1879. [GRINNELL, G. B.] Habits of the Butcher Bird [Lanius borealis]. < *Forest and Stream*, xiii, Oct. 2, 1879, p. 684.

Notice of D. M. Marshall's contribution to the *Journal of Science*.

1879. DEANE, R. Capture of the Loggerhead Shrike [Lanius ludovicianus] in New Hampshire. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 119, 120.

1879. LANGDON, F. W. The White-rumped and Loggerhead Shrikes [Lanius ludovicianus, et var. excubitorides] in Ohio. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 120.

1879. MARSHALL, D. M. Notes on the Habits of the Great Northern Shrike [Lanius borealis]. < *The Journal of Science* (newspaper of Toledo, Ohio), n. s., ii, No. 6, Aug., 1879, cut.

Popular account of habits; with a cut.

1879. MARSHALL, D. M. [Notes on the Habits of the Great Northern Shrike (Lanius borealis).] < *The Oölogist*, v, No. 2, Aug., 1879, p. 16.

Quoted with editorial comment from *The Journal of Science* (Toledo, Ohio), Aug., 1879.

1879. PURDIE, H. A. The Loggerhead Shrike [Lanius ludovicianus] breeding in Maine. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 186, 187.

1879. PURDIE, H. A. Nesting of the Great Northern and Loggerhead Shrikes in Maine. < *Forest and Stream*, xii, Apr. 3, 1879, p. 166.

Interesting note on the breeding of *Lanius ludovicianus* in Maine.

1879. PURDIE, H. A. The Loggerhead Shrike [Lanius ludovicianus] in Maine. < *Forest and Stream*, xii, May 8, 1879, p. 265.

Correcting statement in *Forest and Stream*, above cited, that *Lanius borealis* breeds in Maine, and showing that probably *L. ludovicianus*, only, occurs there in summer.

Corvidæ.

1805. BARTRAM, W. Anecdotes of the American Crow. < *Philadelphia Med. and Phys. Journ.*, i., 1805, pp. 89–95; *Nicholson's Journ.*, xii, 1805, pp. 194–198.

Not seen; title from *Roy. Soc. Cat.*

1818. ORD, G. An Account of the Florida Jay, of Bartram [Garrulus cærulescens]. <*Journ. Acad. Nat. Sci. Phila.*, i, 1818, pp. 345–347.

1829. HILL, W. H. The Young of the Raven [Corvus corax]. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 403.

1833. D[ENSON ?], J. A Magpie the Tips of whose Mandibles crossed each other in the manner the Sides of the Letter x do. < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 517, 518.

1835. G[EOFFROY] S[T. HILAIRE, ISID.]. Pie. Pica. Cuv. P. à moustaches blanches. P. mystacalis. G. S. < *Guér. Mag. de Zool.*, 5e année, 1835, classe ii, notice xxxiv, pl. xxxiv.

Bolivia (*Cyanocorax*).

1836. GODMAN, J. D. American | Natural History. | By | John D. Godman, M. D. | To which is added | his last work, | the Rambles of a Naturalist, | with | a biographical sketch of the author. | In two volumes. | Vol. I [II]. | — | Third edition. | — | Philadelphia: | published by Hogan & Thompson. | — | 1836. 2 vols. 8vo. Vol. I, engr. title-p., pp. i–xxvi (biographical sketch), 1 l. (dedication), pp. v–xiv (preface and introduction), pp. 15–345. Vol. II, engr. title-p., pp. 1–337. Plates in both vols.

Dr. Godman was born at Annapolis, Md., Dec. 20, 1794, and died Apr. 17, 1830. His principal work, "American Natural History," is devoted to Mammals, as is well known. The original edition, in 3 vols. 8vo., was published, vols. i, ii, 1826, Philadelphia, H. C. Carey and I. Lea, and vol. iii, 1828, Philadelphia, Carey, Lea, and Carey. This was reissued in 1831, Philadelphia, Stoddart and Atherton, without alteration, doubtless from the original plates. In 1836 appeared the third edition, as here cited, in *two* vols.; substantially the same as the original, as to main text, but with biographical sketch prefixed to vol. i, and the "Rambles" affixed to vol. ii. This third edition was reissued in 1860, Philadelphia, Uriah Hunt and Son, apparently without alteration, though with new title-page. I have handled all four of these issues.

The "Rambles" are an incomplete series of sketches, composed by the author on his death-bed, and appeared first in a weekly journal published in Philadelphia; but I have never been able to see the original articles. They were first added to this 1836 edition of the "Natural History," and reappear in the 1860 reissue. Nos. x–xii of the "Rambles," pp. 325–337 of both the 1836 and the 1860 editions, are devoted to the natural history of *Corvus americanus;* and these sketches are, upon the whole, the best account we possess of the habits and traits of the bird.

1836. WATERTON, C. Notes on the Habits of the Magpie [Corvus pica]. < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 225–229.

1842. LAFRESNAYE, [F.] DE. G. Pie. Pica. Cuvier. P. de San-Blas. P. San-Blasiana. De Lafresn. (Geai de San-Blas, Néboux, Rev. zool., 1840, pp. 290 et 323.) < *Guér. Mag. de Zool.*, 2e sér., année 1842, oiseaux, pp. 1, 2, pl. 28.

1843. CABOT, S., JR. [Corvus vociferus, sp. n., from Yucatan.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1843, p. 155.

1843. H[EWITT], W. Note on the Habits of the Raven [Corvus corax]. < *Zoologist*. i, 1843, pp. 215–219.

1843. H[EWITT], W. Additional Note on the Raven [Corvus corax]. < *Zoologist*, i, 1843, pp. 305, 306.

1843. HEWITT, W. Note on Magpies, Jays and Crows [Corvidæ]. < *Zoologist*, i, 1843, pp. 350, 351.

1845. Anon. Ferocity of a Magpie [Corvus pica]. < *Zoologist*, iii, 1845, p. 1072.
From *Lancaster Gazette*, June 21, 1845.

1845. Cabot, S., Jr. [Remarks on exhibition of a specimen of Pica melanoleuca from Michigan.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1845, pp. 73, 74.
Critical comparison with the European bird.

1845. Strickland, H. E. On Cyanocitta, a proposed new genus of Garrulinæ, and on C. superciliosa, a new species of Blue Jay, hitherto confounded with C. ultramarina, Bonap. < *Ann. Mag. Nat. Hist.*, xv, 1845, pp. 260, 261.
The type of the new genus *Cyanocitta* is expressly stated to be *Garrulus cristatus* (Linn.); wrongly given by most American writers as *G. superciliosa*=*G. californicus*.—*G. cristatus* is wrongly given by G. R. Gray and others as the type of Swainson's genus *Cyanurus*, 1831, upon the assumption that the first species mentioned by an author under a genus must be considered his type of that genus. But Swainson himself says that *cristatus*, etc., are aberrant members of his genus *Cyanurus*. Therefore, *Cyanurus* Sw., 1831, is a synonym of *Cyanocorax* Boie, 1826, leaving *Cyanocitta* Strickl., 1845, to stand for the *crested* blue jays of America typified by *C. cristatus*, *stelleri*, etc.—See *P. Z. S.*, 1876, p. 268, note.

1845. Strickland, H. E. Further Notice respecting Cyanocitta superciliosa, a supposed new Species of Blue Jay. < *Ann. Mag. Nat. Hist.*, xv, 1845, pp. 342, 343.
Identified with *Garrulus californicus* Vig.

1846. Agassiz, L. [Corvus lugubris, sp. n.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1846, p. 188.

1846. Hughes, E. J. R. Habit of the Raven [Corvus corax]. < *Zoologist*, iv, 1846, p. 1366.

1847. Agassiz, L. On the Moose and Carabou and on the American Raven [Corvus lugubris]. < *Am. Journ. Sci.*, iii, 1847, p. 436.
From *Proc. Bost. Soc. Nat. Hist.*, 1846, p. 187.

1847. Agassiz, L. On the Moose and Carabou, and on the American Raven [Corvus lugubris]. < *Ann. Mag. Nat. Hist.*, xx, 1847, p. 142.
From *Am. Journ. Sci.*, 1847, p. 436.

1848. Cassin, J. Descriptions of two new Species of the Genus Cyanocorax [C. harrissii, C. concolor], Boie, of which specimens are in the Collection of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iv, 1848, pp. 26, 27.

1848. Prater, T. Anecdote of a Magpie (Corvus pica). < *Zoologist*, vi, 1848, p. 2146.

1849. Cabot, S., Jr. [On the specific distinctness of Corvus americanus and Corvus corone.] < *Proc. Bost. Soc. Nat. Hist.*, iii, 1849, pp. 104, 105.

1849. Ellman, J. B. A Gamekeeper's Stratagem. < *Zoologist*, vii, 1849, p. 2494.
Singular method of attracting magpies,—by cries of a tortured hedgehog.

1849. Strickland, H. E. Cyanocorax nanus, Dubus. ? < *Jard. Contrib. Orn.*, 1849, p. 122, pl. xxxiii.
Provisionally named *C. pumilio*, sp. n.

1850. Anon. A Magpie's delicate attention to its Mistress. < *Zoologist*, viii, 1850, p. 2953.
From *Literary Gazette*, Oct. 12, 1850.

1850. Bonaparte, C. L. On the Garruline Birds, or Jays; with Descriptions of new species. < *P. Z. S.*, xviii, 1850, pp. 79–86, pl. (Aves) xvii.
This paper requires close attention to catch its drift. The author's "Napoleonic" tendency to transfer, substitute, and otherwise interfere with the genera of other authors, to suit his own notions, is here seen at about its worst: and this abuse of generic nomenclature in *Garrulinæ* has provoked endless confusion.

Gray's *Lophocitta*, 1840, *vice Platylophus* Sw., is applied (p. 79) to *Garrulus histrionicus* Müll., and *Corvus galericulatus* Cuv.

Garrulus lidthi, p. 80, pl. 17, is a new species; other species of *Garrulus* treated are *G. lanceolatus* Vig., *glandarius* V., *japonicus* Schl., *krynickii* Kalen., *melanocephalus* Bonelli, *brandti* Eversm., and *bispecularis* Vig.

Cyanogarrulus Bp., p. 83, is "dismembered" from *Cyanocorax* Boie, 1826, for *C. cristatus*, etc., becoming thus exactly synonymous with *Cyanocitta* Strickl., 1845.

1850. BONAPARTE, C. L.—Continued.

Cyanocorax Boie is "restricted" to such species as *C. azureus* and *violaceus*.

Xanthura Bp., p. 83, is proposed for *Corvus peruvianus*.

Cissilopha Bp., p. 83, is applied to *C. sanblasiana*.

Cyanurus Sw., 1831, is "transferred" to such species as *Pica bullockii* Wagl., and *P. colliei* Vig.—*Cyanurus dairi*, *Cyanurus cubo*, p. 84, are new species.

Calocitta is applied to "red-billed, long-tailed, blue magpies."

Cyanocephalus wiedi Bp., "1842", occurs on p. 85; but only the generic name *Cyanocephalus* appeared in 1842. *Gymnokitta* (g. n., "Max.") occurs in the same paragraph.

Cyanopica Bp., p. 85, with species *C. melanocephala* (Wagl.) *cyaneus* (Pall.) and *cooki* Bp., 1849.

Streptocitta Bp. and *Gazòla* Bp. are respectively proposed to be applied to *Pica albicollis* V., and *Corvus caledonicus*.

1850. C. Fragments from my note-book.—A bird breathing through its wing. *Family Visitor*, i, 1850, p. 32.

A blue jay with its wing broken, was brought to me to stuff. . . . Wishing to kill it without injuring its skin or disarranging its feathers, I attempted to strangle it by compressing its neck firmly so that the windpipe was entirely closed, and in this manner I held it several minutes without its presenting any appearance of suffocation or inconvenience, and its thorax contracted and expanded regularly. Putting it down on the floor it hopped off into a corner, screaming and scolding as usual. I was sadly puzzled to account for this, till at length I thought of its wing; and on examining it I found the long bone (humerus) broken, and through this it breathed. After I stopped up this orifice and compressed the windpipe again, it was suffocated in a few moments. . . . Cleveland, Ohio, Jan. 19, 1850.

1850. CURTLER, M. Ferocity of the Magpie (Pica caudata). < *Zoologist*, viii, 1850, pp. 2799, 2800.

1850. MC'INTOSH, J. Longevity of a Magpie (Pica caudata). < *Zoologist*, viii, 1850, p. 2824.

1851. BEADLES, H. Anecdotes of a Raven [Corvus corax]. < *Zoologist*, ix, 1851, pp. 3033, 3034.

1851. BONAPARTE, C. L. On the Garruline Birds, or Jays; with Descriptions of new species. < *Ann. Mag. Nat. Hist.*, 2d ser., vii, 1851, pp. 412–419.

From *P. Z. S.*, Apr. 12, 1850, pp. 79–86, *q. v.*

1853. BERNSTEIN, H. A. De | Anatomia Corvorvm. | Pars prima. | Osteologia. | — | Dissertatio | Inavgvralis zootomica | qvam | consensv et avctoritate | gratiosi Medicorvm ordinis Vratislaviensis | pro | svmmis in Medicina et Chirvrgia honoribvs | rite | capessendis | die XVI. M. Novembris A. MDCCCLIII | Hora IX | palam defendet | avctor | Henricvs Agathon Bernstein. | — | . . . | — | Vratislaviae, | typis Grassii Barthii et Soc. (W. Friedrich). 1 vol. 8vo. pp. i–vi, 1–64 + 1 l.

1854. JAMES, G. P. R. The Raven [Corvus corax]. < *Harper's Monthly Mag.*, viii, 1854, pp. 463–470.

Anecdotes of its behavior in England.

1855. BERGE, F. [Ueber die Eier von Corvus corax.] < *Naumannia*, 1855, p. 110.

1855. FUHLROTT, [C.] [Varietät der gemeinen Elster, Corvus pica, L.] < *Naumannia*, 1855, pp. 398–400.

1855. KAUP, J. [J.] Einige Worte über die systematische Stellung der Familie der Raben, Corvidæ. (Anh. iii. zu Bericht über d. viii. Jahresvers. d. deut. Orn.-Gesell.) < *J. f. O.*, 1854, Extrahheft (1855), pp. xlvii–lvi, pl. ii, f. 10.

The family is divided into 5 subfamilies, each of 5 lesser groups (some not yet discovered). The diagrammatic illustration of the author's views is a pentagon (family), pointed with 5 lesser pentagons (subfamilies), rayed into stars by the 25 (actual or theoretical) minor groups. The quinary notion is also indicated in his arrangement of allied families.

1856. MAXIMILIAN. Ueber die nordamerikanische Elster, (Pica hudsonica Bonap.) < *J. f. O.*, iv, 1856, pp. 197–204.

Elaborate description, with reference to its supposed distinction from *P. melanoleuca*; but some of the alleged differences have been disproved, and none of them have been established.

1857. Smith, R. B. Raven Paring [sic] with Crow. < *Zoologist*, xv, 1857, pp. 5680, 5681.

1858. Brehm, [C.] L. Die langgeschwänzte Elster, Pica caudata Ray. < *J. f. O.*, vi, 1858, pp. 173–176.

"Zerfällt nach meiner Ueberzeugung in folgende Arten:" *P. leuconotus* Brm., *P. vulgaris* auct., *P. melanotos* nob., *P. mauritanica* Bp.

1859. Schlegel, H. Notice sur le Genre Corvus. < *Bijdragen tot de Dierkunde*, II. Deel, Achtste Aflevering, 1859, pp. 1–16, avec trois planches, dont l'une quadruple, 1, 1*b*, 2, 3.

This "notice" is in fact a monograph of the genus; on the whole, the most reliable and satisfactory one we have. The author's well-known extreme conservatism perhaps never appeared to better advantage than in this case, of a genus of which the rather numerous species are colored so uniformly, and at the same time present so much variation in size and shape. Numberless nominal species are here laid, and the residuum may be considered a safe basis for further study of the genus; for it is extremely unlikely that there are *fewer* good species than this author allows. Two, *C. advena* and *C. senex*, are figured in colors; while of most of the rest, the heads are shown of life size on the black "quadruple plate" (really two double plates, 1 and 1*b*). Here is the list of them all, with the references both to the pages and to the plates, as the publication is not in every library:—

C. crassirostris, *cafer*, p. 1; *scapulatus*, *pectoralis*, p. 2; *advena* (sp. n., pl. ii), *cornix*, p. 3; *splendens*, *corax* (pl i, f. 1, 2), p. 4; *japonensis* (pl. i, f. 3, 4), *culminatus* (pl. i, f. 7), p. 7; *corone* (pl. i, f. 11, 12), *coronoides* (pl. i, f. 13), *umbrinus* (pl. i, f. 14), p. 8; *macrorhynchus* (pl. i, f. 5, 6), *orru* (pl. i, f. 9, 10), *brevipennis* (sp. n., pl. i, f. 8), p. 9; *senex* (pl. iii), *americanus*, p. 10; *solitarius* (pl. i, f. 17), *mexicanus* (pl. i, f. 25), *frugilegus* (pl. i, f. 18), p. 11; *capensis* (pl. i, f. 19), *minor* (pl. i, f. 20) *validissimus* (sp. n., pl. i, f. 21), p. 12; *validus* (pl. i, f. 22), *enca* (pl. i, f. 23), p. 13; *violaceus* (pl. i, f. 24), *ossifragus* (pl. i, f. 27), *leucognaphalus* (pl. 1, f. 28), p. 14; *affinis* (pl. i, f. 26), *monedula*, p. 15; *dauuricus*, *neglectus* (sp. n.), p. 16. Cf. *Ibis*, 1860, pp. 189–191.

1860. Anon. The Magpie Nesting in Confinement. < *Zoologist*, xviii, 1860, pp. 6920, 6921.

1860. Godman, J. D. American | Natural History | By John D. Godman, M. D. | To which is added | his last work, | The Rambles of a Naturalist, | with a biographical sketch of the author. | In two volumes. Vol. II. | — | Third edition. | — | Philadelphia: | Uriah Hunt & Son, | 62 North Fourth street. | 1860. 8vo. pp. 337.

This is merely a reissue of the 2 vol. 3d ed. of 1836, *which see*. The articles on *Corvus americanus* occupy the same pages, 325–337, of vol. ii.

1860. Heine, F. Ueber die Gattung Cyanocorax Boie. < *J. f. O.*, viii, 1860, pp. 113–118.

Systematic synopsis, with diagnoses, synonyms, etc., of 8 spp.—*C. sclateri*, *C. uroleucus*, p. 115; *C. intermedius*, p. 116, spp. nn. *Argurocetta*, g. n., p. 117, type *Corvus cyanoleucus* Wied.

1862. Barclay, W. L. Three Ravens [Corvus corax] feeding on a dead Hare at Higham. < *Zoologist*, xx, 1862, p. 7932.

1862. Bree, W. T. Gathering of Magpies. < *Zoologist*, xx, 1862, p. 7846.

1862. Bree, C. R. Notes about Magpies. < *Zoologist*, xx, 1862, pp. 8162–8164.

1862. Gibson, B. Large Flocks of Magpies. < *Zoologist*, xx, 1862, p. 7881.

1862. Hadfield, H. Corvus americanus: Corvus corone of Wilson. < *Zoologist*, xx, 1862, p. 8282.

Differences from *C. corone* of Europe.

1862. Hadfield, H. Gatherings of Magpies. < *Zoologist*, xx, 1862, pp. 7931, 7932.

1862. Thompson, T. Gathering of Magpies. < *Zoologist*, xx, 1862, p. 7846.

1863. Bree, C. R. Magpies Breeding in Confinement. < *Zoologist*, xxi, 1863, p. 8632.

1864. Cox, C. J. Defence of the Magpie and Rook. < *Zoologist*, xxii, 1864, pp. 8952–8954.

1864. Mortimer, T. Domesticated Magpies. < *Zoologist*, xxii, 1864, p. 8885.

1864. Walter, H. Eine Rabenkrähe mit Kreuzschnabelbildung. < *Zool. Gart.*, v, 1864, pp. 283–286, figg.

1865. Anon. Grosse Antipathie des Raben [Corvus corax] gegen den Habicht. < *Aus. der Natur.*, xxxi oder xix, 1865, p. 1860.

1865. Dutton, J. Destructive Propensities of the Raven [Corvus corax]. < *Zoologist*, xxiii, pp. 9562, 9563.

1865. Gobynari, —. Ein alter Rabe [Corvus corax]. < *Zool. Gart.*, vi, 1865, p. 278.

1865. Rey, E. [Zucht der Elstervögel (Pica melanoleuca).] < *Zool. Gart.*, vi, 1865, pp. 187–189.

1866. Dutton, J. Raven [Corvus corax] Nesting in a Cucumber-frame. < *Zoologist*, 2d ser., i, 1866, p. 32.

1866. Mathew, M. A. An ancient Raven [Corvus corax]. < *Zoologist*, 2d ser., i, 1866, p. 270.

1866. Nöll, J. F. Ein getäuschter Rabe. < *Zool. Gart.*, vii, 1866, p. 39.

1866. Willemoes-Suhm, R. v. Brütende Elsteralbinos [Pica caudata]. < *Zool. Gart.*, vi, 1866, pp. 76, 77.

1867. Beckwith, R. G. Magpie with Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, pp. 826, 827.

Supposes the bird's bill colored with yolk of egg.

1867. Harvie-Brown, J. A. Magpie with a Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, pp. 877, 878.

Fears no satisfactory conclusion can be reached.

1867. Harvie-Brown, J. A. Magpie with a Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, pp. 706, 707.

A living bird of this kind observed in Scotland. Very interesting, in its bearing on *Pica nuttalli.*

1867. Mathew, G. F. Magpie with Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, p. 1016.

Another case,—a similar bird observed in Devonshire.

1867. Newton, A. Magpie with a Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, p. 757.

Makes the obvious comparison with *Pica nuttalli.* The editor, E. Newman, supposes the bird to be *Pica nuttalli.*

1867. Newton, A. Magpie with a Yellow Beak. < *Zoologist*, 2d ser., ii, 1867, p. 913.

Pertinent observation: "Causes which in America have produced a permanent race of magpies having yellow bills may in Europe have produced a single example having the same peculiarity."

1867. Schlegel, H. Coraces. < *Mus. Hist. Nat. Pays-Bas*, 9^{e} livr., 1867, pp. 1–150.

"La famille des Coraces comprend les sous-familles des Corvi, Paradiseæ et Coraciæ." (!)

"The author in this portion of his Catalogue groups together a most heterogeneous assemblage of birds. *Corvidæ*, *Paradiseidæ*, *Oriolidæ*, *Sturnidæ*, but worst of all, *Coraciidæ*, so that it is almost impossible to give here a clear account of them. The *Corvidæ*, in which we include the author's genera *Corvus*, *Nucifraga*, *Pica*, *Cyanocorax*, *Picathartes*, *Pyrrhocorax*, *Garrulus*, *Cissa*, *Glaucopis*, *Chalybæus*, *Cracticus*, and *Lycorax*, appear to be represented in the Leyden Museum by 685 mounted specimens belonging to 116 species . . ." (*Zool. Rec.*, 1867, p. 112.) Cf. *Ibis*, 1867, p. 111.

1868. Dutton, J. Rook with a crossed Beak. < *Zoologist*, 2d ser., iii, 1868, p. 1459.

1868. Endicott, W. E. Remarkable flight of Crows [Corvus americanus]. < *Am. Nat.*, ii, 1868, p. 381.

Nearly 100,000, estimated, passing over a point in Maryland, U. S., between 4 and 6 p. m., in April.

1868. Hoxie, W. [Extract from a letter containing observations on the habits of Cyanurus cristatus.] < *Proc. Boston Soc. Nat. Hist.*, xi, 1868, p. 284.

1868. Nauman, C. H. Is the Crow [Corvus americanus] a Bird of Prey? < *Am. Nat.*, ii, 1868, p. 491.

Cf. *tom. cit.*, 664. Note of a crow seizing and carrying off a chicken, *more accipitrino.*

1869. Anon. La Corneille [Corvus americanus] est-elle un oiseau de proie? < *Naturaliste Canadien*, i, 1869, p. 194.

Affirmé.

1869. BARTHOLF, J. H. Is the Crow [Corvus americanus] a Bird of Prey? < *Am. Nat.*, ii, 1869, p. 664.
Other (cf. *tom. cit.*, 491) instances of the crow seizing and carrying off chickens, like a hawk.

1869. BREWER, T. M. [Remarks on exhibition of four unspotted eggs of Corvus americanus.] < *Proc. Boston Soc. Nat. Hist.*, xiii, 1869, pp. 138, 139.

1869. RATHVON, S. S. The Crow [Corvus americanus] a Bird of Prey. < *Am. Nat.*, iii, 1869, pp. 102, 103.
The raptorial propensities of *Corvus americanus* confirmed.

1870. BREWER, T. M. The Blue Jay Family. < *Atlantic Monthly*, Apr., 1870, pp. 480–485.

1870. HAMEL, E. D. Cream-coloured Magpie. < *Zoologist*, 2d ser., v, 1870, p. 2344.

1871. COUES, E. The Long-crested Jay [Cyanurus macrolophus]. < *Am. Nat.*, v, 1871, pp. 770–775, fig. 134.
Extended biography of *Cyanurus macrolophus*.

1871. HORNE, C. [Destruction of young lambs by] Magpies. < *Zoologist*, 2d ser., vi, 1871, pp. 2483, 2484.

1871. LÜHDER, W. Ueber die Raben Neu-Vorpommerns und Rügens. < *Mitth. a. d. naturw. Ver. v. Neu-Vorp. u. Rüg.*, iii, 1871, pp. 40–52.
9 spp.

1872. COUES, E. Observations on Picicorvus columbianus. < *Ibis*, 3d ser., ii, 1872, pp. 52–59.
Extended biographical sketch; synonymy, etc.

1872. COUES, E. Contribution to the History of the Blue Crow [Gymnokitta cyanocephala] of America. < *Ibis*, ii^3, 1872, pp. 152–158.
Synonymy, description, and biography.

1872. FRIEDEL, E. Krähen als Nussdiebe. < *Zool. Gart.*, xiii, 1872, p. 94.

1873. ALLEN, J. A. Crows and Ravens. < *Am. Nat.*, vii, 1873, pp. 743, 744.
On the local distribution of *Corvus corax* and *C. americanus*, with reference to *tom. cit.*, p. 693.

1873. BARRETT, M. On the Migration of Certain Animals as Influenced by Civilization. < *Am. Nat.*, vii, 1873, pp. 693–695.
Chiefly on the local dispersion of *Corvus corax* and *C. americanus*.

1873. BARRETT, M. On the Migration of Certain Animals as influenced by Civilization. < *Am. Sportsman*, iii, 1873, p. 86.
Disappearance of *Corvus corax* from Minnesota, and immigration of *C. americanus*.

1873. GIZYCKI, G. v. Biographie meiner Elster. < *J. f. O.*, 1873, pp. 35–45.

1873. [SALVIN, O.] [Reference to the original notice of the Genus Cyanocephalus Bp.] < *Ibis*, 3d ser., iii, 1873, p. 103.
Bonaparte proposed the genus *Cyanocephalus* in 1842, in his *Oss. Stat. Zool. Eur. Vert.* 1840–41, p. 17; and named the species by implication, *C. wiedi*; but the word "*wiedi*" does not actually occur there. I have verified Mr. Salvin's reference.

1874. ANON. [EDITORIAL.] Possibly a new bird from Oregon. < *Forest and Stream*, iii, Sept. 10, 1874, p. 68.
Concluded to be *Picicorvus columbianus*; see *ibid.*, p. 84.

1874. DUBOIS, A. Remarques Morphologiques sur les Espèces du Sous-genre Xanthoura. < *Bull. Acad. Roy. de Belgique*, 2^e sér, xxxviii, 1874, pp. ———, fig. (carte).
L'auteur constate que ce sous-genre ne comprend réellement qu'une seule espèce, très-variable suivant la position géographique qu'occupent les individus qui la composent, de la manière suivante: *Cyanocorax yncas*, Bolivie, Pérou, repub. de l'Équateur; α, *cyanodorsalis* (var. n.), Nouvelle-Grenada centrale et méridionale; β, *cyanocapilla*, nord de la Nouv.-Grenade jusqu'au Guatémala; γ, *cæruleocephala* (var. n.), Vénézuéla; δ, *luxuosa*, Mexique, Texas.

1874. KERR, W. J. Ravens [Corvus corax] Nesting in North Wales. < *Zoologist*, 2d ser., ix, 1874, p. 4156.

1874. LEE, A., *Miss.* Jim Crow. < *St. Nicholas Mag.*, i, 1874, pp. 647–649, figs. 1-9.
Amusing account of a pet *Corvus americanus*.

1874. TRIPPE, T. M. The White-necked Raven [Corvus cryptoleucus, field note on]. < *Am. Nat.*, viii, 1874, pp. 429, 430.

1875. ANON. A variegated Crow [Corvus americanus, albinistic]. < *Forest and Stream*, iii, Feb. 4, 1875, p. 405.

1875. COUES, E. [On the nest and eggs of Gymnokitta cyanocephala.] < *Ibis*, 3d ser., v, 1875, pp. 270– —.

1875. [PIERCE, G.] A white Crow [Corvus americanus]. < *Forest and Stream*, v, Sept. 23, 1875, p. 100.

1875. [PIERCE, G.]. Rara Avis [albinistic Corvus americanus]. < *Rod and Gun*, vi, Sept. 25, 1875, p. 386.

1876. ANON. Mathematical Faculty of Crows. < *Rod and Gun*, vii, Mar. 4, 1876, p. 363.

Anecdote, from "Portland Advertiser."

1876. ANON. A Thievish Crow [Corvus americanus]. < *Rod and Gun*, viii, July 22, 1876, p. 269.

From the New Bedford, Mass., "Mercury." *Corvus americanus* preying upon fledglings of Robins.

1876. ANON. [Caterpillars' eggs in stomach of Corvus americanus.] < *Rod and Gun*, viii, July 15, 1876, p. 250.

1876. BENDIRE, C. Notes on the Breeding Habits of Clarke's Crow (Picicorvus columbianus), with an Account of its Nest and Eggs. < *Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, pp. 44, 45.

1876. [COUES, E.] [Anecdote of the intelligence of a Crow (Corvus ossifragus).] < *New York Independent*, Nov. 23, 1876.

A tame bird of this kind, kept in a yard where there was a tub of water containing small fish, snails, etc., for stocking an aquarium, used to alight upon the brim of the tub, and drop bread-crumbs into the water to attract the fish; which it seized as they rose to the surface, and devoured.

1876. FRAZAR, A. M. Intelligence of a Crow [Corvus americanus]. < *Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, p. 76.

1876. "J. F." Crows [Corvus americanus] despoiling heronries. < *Forest and Stream*, vii, Sept. 14, 1876, p. 84.

1876. MORRIS, R. T. Charges against the Crow [Corvus americanus]. < *Forest and Stream*, vi, July 27, 1876, p. 401.

1876. REID, P. Blue Jay [Cyanurus cristatus]. < *Rod and Gun*, vii, Feb. 12, 1876, p. 369.

1876. SCHOCK, O. D. Charges against the Crow [Corvus americanus]. < *Forest and Stream*, vii, Aug. 17, 1876, p. 20.

1876. SCLATER, P. L., *and* SALVIN, O. Notes on some of the Blue Crows of America. < *P. Z. S.*, Feb. 15, 1876, pp. 268–272.

Cyanocitta germana, p. 270, Belize, Piten, Merida, sp. n.; *C. armillata*, γ. *quindiuna*, p. 272, Cordillera of Quindiu, var. n.

Critical notes on *Cyanocitta argentigula*, *C. sanblasiana*, *C. beecheii*, *C. germana* (p. 270, sp. n.), *C. jolyæa* Bp., *C. armillata*, G. R. Gr., of which last are given as subspecies *meridana*, p. 271, *bogotana*, p. 272, and *quindiuna* (subsp. n.), p. 272.—*Cyanocorax ortoni*, Lawr. = *C. mystacalis*, Geoffr.—Special note on the type of the genus *Cyanocitta*, which is *C. cristatus*.

1876. WEBSTER, N. B. Crows [Corvus americanus] seeking Water. < *Field and Forest*, vol. ii, No. 4, Oct., 1876, p. 65.

By pecking into watermelons.

1877. COUES, E. Letters on Ornithology. No. 15.—Curious Crows [Picicorvus columbianus and Gymnokitta cyanocephala]. < *The Chicago Field*, July 14, 1877, 2 figg.

Popular notices of these species, with figures of their heads.

1877. [INGERSOLL, E.] Crows [Corvus americanus]. < *Rod and Gun*, ix, Jan. 27, 1877, p. 266.

From "New York Tribune."

1877. MILLER, H. The Crow [Corvus americanus]. < *Rod and Gun*, ix, Feb. 24, 1877, p. 329.

Observations upon habits, capability, and utility.

1877. TENNEY, S. The Raven [Corvus carnivorus] and the Sooty Tern [Sterna fuliginosa] in Williamstown, Massachusetts. < *Am. Nat.*, xi, No. 4, Apr., 1877, p. 243.

1878. EAGLE, C. H. The Fish Crow (Corvus ossifragus, Wils.), on Long Island. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 47.

With editorial note by J. A. Allen.

1878. HENSHAW, H. W. Nest and Eggs of the Blue Crow (Gymnokitta cyanocephala). < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, pp. 112–115.

Also on the general habits of the bird. Cf. *Ibis*, 1875, p. 270.

1878. [QUAY, T. R.] Crimes of the Crow [Corvus americanus]. < *Forest and Stream*, x, May 2, 1878, p. 236.

Opinion that the bird is rather injurious than beneficial to the agriculturist.

1878. [WILLARD, S. L.] The Jay of the North; Canada Jay [Perisoreus canadensis]. < *The Oölogist*, iv, No. 2, Apr., 1878, pp. 14, 15.

Compiled account of the habits of the bird.

1878. [WILLARD, S. L.] Utility of the Crow [Corvus americanus]. < *The Oölogist*, iv, No. 5, July, 1878, p. 38.

1878. WILY, S. B. Nesting of the Canada Jay [Perisoreus canadensis]. < *The Oölogist*, iv, No. 4, June, 1878, p. 27.

1879. BREWER, T. M. The Rocky Mountain Whiskey-Jack (Perisoreus canadensis capitalis). < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 239, 240.

On the nest and eggs of this bird, both of which are fully described.

1879. [CORDES, H.] The Crow [Corvus americanus] arraigned. < *Forest amd Stream*, xiii, Oct. 2, 1879, p. 684.

1879. [COUES, E.] The Long Crested Jay-Bird [Cyanurus macrolophus]. < *Hamilton Freeman* (newspaper of Webster City, Iowa), Apr. 9, 1879.

Editorial reprint, with comment, of the account of that species in "Birds of the Northwest," 1874, pp. 216–218.

1879. FLAGG, W. The Blue Jay [Cyanurus cristatus] in the East. < *Forest and Stream*, xiii, Dec. 18, 1879, p. 907.

1879. [GRINNELL, G. B.] Crows [Corvus americanus] in Caucus. < *Forest and Stream*, July 24, 1879, p. 485.

Great flight of crows near Harper's Ferry, Va.

1879. [HARRIMAN, M. C.] Corvus corax in New Hampshire. < *Forest and Stream*, xii, Mar. 13, 1879, p. 106.

Notice of capture of this species near the town of Warner, N. H.

1879. ZEREGA, L. A. Capture of a Fish Crow (Corvus ossifragus) near Seabright, Monmouth County, New Jersey. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 239.

Addenda to Corvidæ.

1815. CLINTON, DE WITT. An Introductory Discourse delivered on the 4th of May, 1814. < *Trans. Lit. and Philos. Soc. New York*, i, 1815, pp. 21–184. > Note T, p. 129.

Note T, to this discourse, is on the American Raven, *Corvus corax*.

1825. BONAPARTE, C. [L.] Descriptions of two new species of Mexican Birds. < *Journ. Acad. Nat. Sci. Phila.*, iv, 1825, pp. 387–390.

At p. 387, *Corvus ultramarinus;* the other is an *Icterus*.

Icteridæ.

1815. CLINTON, DE WITT. An Introductory Discourse delivered on the 4th of May, 1814. < *Trans. Lit. and Philos. Soc. N. Y.*, i, 1815, pp. 21–184. > Note S, pp. 125–128.

Note S, appended to this discourse, treats of the plumages and migrations of the Bobolink, *Dolichonyx oryzivorus*.

1818. ORD, G. Observations on two species of the genus Gracula [G. quiscala, G. barita] of Latham. < *Journ. Acad. Nat. Sci. Phila.*, i, 1818, pp. 253–260.

A critical article, distinguishing the Boat-tailed Grackle (*Quiscalus major* V.) from the Purple Grackle (*Q. purpureus*).

1819. LICHTENSTEIN, K. M. H. Ueber die Gattung Gracula aus der Familie der Krähenvögel (Coraces). < *Abhandl. der Berlin. Akad.*, aus d. Jahren 1816–17, 1819, Phys. Classe, pp. 143–154. (Vorgelesen den 18. Juli 1816.)

This is the original; there is another edition in *Isis*, 1824, pp. 402–406, *q. v.*

The "genus" *Gracula* of this author is very extensive, including birds of several of the families recognized by modern ornithologists, among them the *Icteridæ*.

The species of *Gracula* treated are the following:—*Gracula religiosa*, p. 148; *G. calva*, p. 148; *G. tristis*, p. 148; *G. pagodarum*, p. 148; *G. cristatella*, p. 149: *G. carunculata*, p. 149, with several others of doubtful character.—The author then proceeds to treat the other Linnean "*Graculæ*", *i. e.*, *Icteridæ*, as follows:—*Quiscala purpurea*, "n. sp"., p. 151 (but Bartram had called it *Gracula purpurea* in 1791!); *Q. fulgida*, n. sp., p. 151; *Q. navicularis*, n. sp., p. 151; *Q. saularis*, p. 151; *Q. jamaicensis*, p. —.

1824. LICHTENSTEIN, K. M. H. Dissertation sur le genre Martin ou Mainate (Gracula); par Lichtenstein. . . < *Féruss. Bull.*, 2e sect., ii, 1824, p. 294.

Extraite des *Abhand. Königl. Acad. Wiss. Berlin* pour les années 1816 et 1817, pp. 143–154.

1824. LICHTENSTEIN, K. M. H. [Abhandlung über Gracula. Auszug aus Abh. Königl. Akad. Wiss. Berlin aus d. Jahren 1816–17, 1819, SS. 143–154.] < *Oken's Isis*, Jahrg. viii, 1824, pp. 402–406.

Die Charaktere der verwandten Sippen, *Corvus*, *Coracias*, *Paradisea*, *Gracula*. Die reinen *Graculæ* sind folgende sechs: *religiosa*, *calva*, *tristis*, *pagodarum*, *cristatella*, *carunculata*, p. 403. Zweifelhaft bleiben; *G. grisea* Daud., *GG. gingiiniana*, *malabarica*, *icterops* Lath., *G. longirostra* Pall.—*GG. strepera*, *tibicen* und *varia* Shaw bilden besser eine eigene Sippe den Racken nahe.—*G. cayennensis* Gm. und *G. picoides* Shaw hat Hermann als *Dendrocolaptes* aufgestellt. Die andern *Graculæ* von Linné stellt der Verfasser als *Quiscala* auf: *Q. purpurea* = *G. quiscala* Lath.; *Q. fulgida* Licht. = *Sturnus quiscala* Daud.; *Q. navicularis*; *Q. saularis*; *Q. jamaicensis* = *Sturnus jamaicensis* Daud.

1825. BONAPARTE, C. [L.] Descriptions of two new species of Mexican Birds. < *Journ. Acad. Nat. Sci. Phila.*, iv, 1825, pp. 387–390.

At p. 389, *Icterus melanicterus*; the other is a *Corvus*.

1825. VIGORS, N. A. On the genus Icterus Briss. < *Zool. Journ.*, ii, 1825, pp. 182–197, pll. suppl. 9, 10.

This, the second instalment of the series of articles entitled "Sketches on Ornithology; or," &c., treats of the family *Icteridæ* as now understood. Here occur the descriptions of *Xanthornus chrysopterus*, sp. n., p. 190, pl. 9, and of *Leïstes* (g. n., p. 191) *suchii*, sp. n., p. 192, pl. 10. (*Féruss. Bull.*, viii, 1826, pp. 111–113; *Isis*, 1830, 1013–1018.)

1826. BONAPARTE, C. [L.] On the distinction of two species of Icterus, hitherto confounded under the specific name of Icterocephalus. < *Journ. Acad. Nat. Sci. Phila.*, v, 1826, pp. 222–225.

Icterus xanthocephalus, n. sp., p. 223.

1826. LESSON, [R. P.] Esquisses ornithologiques, etc., etc. Du genre Icterus de Brisson; par N. A. Vigors. . . < *Féruss. Bull.*, 2e sect., viii, 1826, pp. 111–113.
Zool. Journ., ii, No. 6, 1825, pp. 182–197.

1827. LESSON, R. P. Sur les distinctions a établir entre deux espèces d'Icterus, jusqu'a ce jour confondues sous le nom spécifique d'Icterocephalus; par Ch. Bonaparte. . . < *Féruss. Bull.*, 2e sect., xii, 1827, pp. 266, 267.

Journ. Acad. Phila., vi, 1826, pp. 222–225.

1830. VIGORS, N. A. Ornithologischen Skizzen, Fortsetzung. < *Oken's Isis*, Bd. xxiii, pp. 1013–1018.

Uebersetzt aus d. *Zool. Journ.*, vol. ii, Nro. vi, 1825, pp. 182–197.

1836. ORD, G. Observations on the Cow Bunting [Molothrus ater] of the United States of America. < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 57–71.

On its oviposition, parasitism, &c.

1837. BREWER, T. M. Remarks on the positions assumed by George Ord, Esq., in relation to the cow black-bird, (Icterus agripennis [*i. e.*, Molothrus ater]) in Loudon's Magazine for February, 1836. < *Journ. Bost. Soc. Nat. Hist.*, i, pt. iv, 1837, pp. 418–435. (Read July 6, 1836.)

"*Icterus agripennis*" is a name of the Bobolink (*Dolichonyx oryzivorus*), not of the species treated in this paper.

1839. LINSLEY, J. H. Notice of Vespertilio pruinosus and Icterus [Agelæus] Phoeniceus. <*Sillim. Am. Journ. Sci.*, xxxvii, 1839, pp. 195, 196.

On the carnivorous habits of the Blackbird.

1843. CABOT, S., JR. [Oriolus musicus, sp. n., from Yucatan.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1843, p. 155.

This is an *Icterus*, supposed to be the same as that figured by Cassin in *Journ. Phila. Acad.*, ii, 1848, pl. 17 (*giraudii*).

1843. GURNEY, J. H. Note on the occurrence of the red-winged Icterus [Agelæus phœniceus] near Norwich. < *Zoologist*, i, 1843, p. 317.

1844. LAFRESNAYE, [F.] DE. < G. Icterus. Briss. I. guttulatus. Lafresn. < *Guér. Mag. de Zool.*, 2e sér., année 1844, Oiseaux, pp. 1–4, pl. 52.

Icterus mentalis Lafr., *R. Z.*, 1842, p. 136.

1847. CASSIN, J. Descriptions of three new species of the genus Icterus (Briss.;) specimens of which are in the Museum of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, pp. 332–334.

I. maculi-alatus, *I. auricapillus*, p. 332; *I. giraudii*, p. 333.

1847. TARRAGON, [L.] DE. Description d'une nouvelle espèce de Cassique [Cassicus pyrohypogaster], et note sur le Macronix Ameliæ. < *Revue Zoologique*, x, 1847, pp. 252, 253.

1848. CASSIN, J. Description of three new species of the genus Icterus, (Briss.); specimens of which are in the Museum of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, ii, pt. ii, Aug., 1848, art. xi, pp. 137, 138, pll. xvi, xvii.

I. maculi-alatus, p. 137, pl. xvi, f. 1; *I. auricapillus*, p. 137, pl. xvi, f. 2; *I. giraudii*, p. 138, pl. xvii. Described the year previous in *Proc. Phila. Acad.*, iii, pp. 332–334.

1850. STRICKLAND, H. E. Xanthornus prosthemelas, Strickland [sp. n.]. < *Jard. Contrib. Ornith.*, 1850, p. 120, pl. lxii.

1852. LAWRENCE, G. N. Descriptions of new species of Birds of the genera . . . and Xanthornus [affinis], . . . < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 112–117, pl. v. (Read Apr. 28, 1851.)

Here occurs, in a paper of wider scope, full title of which is in the N. Am. part of this Bibl., the orig. descr. of the above sp., p. 113.

1852. [READ, M. C.] Cow Blackbird [Molothrus ater]. < *The Family Visitor*, vol. iii, 1852, p. 68.

A popular article, giving numerous species in the nests of which eggs of the Cowbird have been found.

1853. ANON. "Could'nt! Cos he Sung so!" < *Zoologist*, xi, 1853, p. 3982.

From *Clinton* (U. S.) *Courant*. Note of a young person's inability to throw a stone at *Dolichonyx oryzivorus*, for the reason stated in the title.

1854. Gloger, C. W. L. Das geschlechtliche Verhältniss bei den nicht selbst brütenden Vögeln. < *J. f. O.*, ii, 1854, pp. 137–143.

The general relations of parasitic birds illustrated in the case of *Molothrus ater.*

1856. [Billings, E.] On the Bob-link or Rice-Bird, (Dolichonyx orzivora [sic].) < *Canad. Nat. and Geol.*, i, June, 1856, pp. 233–237.

1861. Sclater, P. L. [Exhibition of a Specimen of the American Meadow-Starling (Sturnella magna) shot in Suffolk, England.] < *P. Z. S.*, xxix, 1861, p. 30.

1861. Sclater, P. L. Notice of the occurrence of the American Meadow-Starling (Sturnella ludoviciana [magna]) in England. < *Ibis*, iii, 1861, pp. 176–180.

Concludes with observations on the genus and a synopsis of 5 spp., namely: *ludoviciana*, *neglecta*, *hippocrepis* (Cuba), *mexicana* (Mexico), p. 179, and *meridionalis* (South America), p. 179—the two last being new.

1864. Jeffery, W., Jr. The Redwinged Starling [Agelæus phœniceus] in Sussex. < *Zoologist*, xxii, 1864, p. 8951.

1865. Jesse, W. Redwinged Starling [Agelæus phœniceus] near Liphook. < *Zoologist*, xxiii, 1865, p. 9782.

1865. Shimer, H. [On a supposed new Species of Icterus from Illinois (=I. spurius).] < *Trans. Acad. Sci. St. Louis*, ii, pt. ii, 1865, pp. 260, 261.

1866. Cassin, J. A Study of the Icteridæ. < *Proc. Acad. Nat. Sci. Phila.*, xviii, 1866, pp. 10–25. (Continued *ibid.*, pp. 403–417, and *op. cit.*, 1867, pp. 45–74.)

Agelainæ: 7 genn., 46 spp.—*Macroagelaius*, p. 13; *Agelaioides*, p. 15; *Erythropsar*, p. 17; *Callothrus*, p. 18; *Cyanothrus*, p. 19, subgg. nn. *Dolichonyx fuscipennis*, p. 16; *Molothrus cabanisii*, p. 22; *M. rufo-axillaris*, p. 23, spp. nn.

1866. Cassin, J. A Second Study of the Icteridæ. < *Proc. Acad. Nat. Sci. Phila.*, xviii, 1866, pp. 403–417. (Continued from *ibid.*, pp. 10–25; continued, *op. cit.*, 1867, pp. 45–74.)

Quiscalinæ: 5 genn., 28 spp.—*Holoquiscalus*, p. 404; *Megaquiscalus*, p. 409; *Euphagus*, *Dives*, p. 413; *Idiopsar*, p. 414, gg. nn. *Quiscalus gundlachii*, *Q. brachypterus*, p. 406; *Q. mexicanus*, p. 408; *Q. rectirostris*, p. 409; *Idiopsar brachyurus*, p. 414, spp. nn.

1866. Edward, T. Redwinged Starling (Sturnus predatorius [Agelæus phœniceus]) in Scotland. < *Zoologist*, 2d ser., i, 1866, p. 310.

1866. Monk, T. J. Redwinged Starling [Agelæus phœniceus] at Brighton. < *Zoologist*, 2d ser., i, 1866, p. 229.

1867. Cassin, J. A Third Study of the Icteridæ. < *Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 45–74. (Continued from *ibid.*, pp. 403–407, and *op. cit.*, 1866, pp. 10–25.)

Icterinæ, more monographically treated than the other groups were in previous "Studies." *Euopsar*, p. 47; *Andriopsar*, p. 49; *Ateleopsar*, p. 53; *Cassiculoides*, p. 54; *Poliopsar*, p. 55; *Melanopsar*, p. 56; *Icterioides*, p. 60; *Melanophantes*, *Aporophantes*, p. 63, genn. nn. *Icterus graysonii*, p. 48; *Icterus sclateri*, p. 49; *Icterus salvinii*, p. 41; *I. grace-annæ*, p. 52; *Cassicus melanurus*, p. 66, spp. nn. Cf. *Ibis*, 1868, p. 115.

Mr. Cassin's "Studies" were protracted and faithful, representing our leading monograph of this family, notwithstanding that the author pushed his generic subdivision so far, and described in some cases very slight geographical modifications as distinct species. It was one of his last works, as this hand paused Jan. 10, 1869.

1867. Jesse, W. Redwinged Starling [Agelæus phœniceus] near Liphook. < *Zoologist*, 2d ser., ii, 1867, p. 913.

1868. Brewster, W. A variety of the Blackbird [Agelæus phœniceus]. < *Am. Nat.*, ii, 1868, pp. 217, 218.

Marked with orange on the breast.

1868. "F. W." The Crow Blackbird [Quiscalus versicolor] a Robber. < *Am. Nat.*, ii, Aug., 1868, p. 326.

Note on breeding, and on stealing the material from other birds' nests.

1868. Jackson, T. H. The Cow-bunting [Molothrus ater]. < *Am. Nat.*, ii, 1868, p. 490.

Its eggs found in nests of *Sayornis fuscus*, *Empidonax acadicus*, *Icteria viridis*, and *Pyranga rubra.*

1868. McLaughlin, W. J. The Yellow-headed Blackbird (Xanthocephalus icterocephalus Baird). < *Am. Nat.*, ii, 1868, pp. 493, 494.

Biographical note from Centralia, Kansas, with editorial note on geographical distribution.

1869. Kedney, H. S. The Cow Bunting [Molothrus ater]. < *Am. Nat.*, iii, 1869, p. 550.

Plural eggs of *Molothrus ater* in nests of *Zonotrichia leucophrys* and *Contopus virens*.

1869. ["F. W."] The Crow Blackbird [Quiscalus versicolor] a Robber. < *Zoologist*, 2d ser., iv, 1869, pp. 1603, 1604.

From 'American Naturalist,' Aug., 1868, p. 326.

1869. Ridgway, R. Notices of certain obscurely known species of American Birds. < *Proc. Acad. Nat. Sci. Phila.*, xxi, 1869, pp. 125–135, woodcc.

III. The Smaller Quiscali of the United States, pp. 133–135, figg. 1–3; 3 spp.—*Q. æneus*, sp. n., p. 134, f. 2.

The article also treats of species of I. *Hylocichla* and II. *Pyranga*. (See under *Turdidæ* and *Tanagridæ*.)

1869. Sternberg, C. Zur Fortpflanzungsgeschichte des Viehstaares, Molobrus sericeus (Licht.). < *J. f. O.*, xvii, 1869, pp. 125–136.

Mit Bemerkungen vom Herausgeber.

1869. [Sternberg, C.] Fortpflanzung des Viehstaares (Molobrus sericius [lege sericeus]). < *Aus der Natur*, xlix, oder n. F., xxxvii, 1869, pp. 595–597.

Nach C. Sternberg's Artikel in *J. f. O.*, 1869, pp. 125–136, mitgetheilt.

1869. Trippe, T. M. The Cow Blackbird [Molothrus ater]. < *Am. Nat.*, iii, 1869, pp. 291–294.

An extended notice of the habits of this species, with special reference to the birds in the nests of which its eggs have been found.

1870. Coues, E. The Cow Bird [Molothrus ater]. < *Am. Nat.*, iv, 1870, p. 58.

Inquires whether the eggs of *Molothrus ater* vary in any way connected with the character of the eggs of different birds selected as foster parents, with reference to A. Newton's observations to this effect in case of *Cuculus canorus*.

1870. Coues, E. The Natural History of Quiscalus major. < *Ibis*, 2d ser., vi, 1870, pp. 367–378.

A full account of the habits of the bird as observed by the writer at Fort Macon, North Carolina.

1870. Howell, R. Blackbirds [Icteridæ] in Winter. < *Am. Nat.*, iv, 1870, p. 52.

Molothrus ater and *Scolecophagus ferrugineus* in Tioga Co., N. Y.

1870. Saussure, H. de. Los Tordos [Icteridæ]. < *La Naturaleza*, i, 1870, pp. 352–358.

Sobre las costumbres. "Con esta nombre [tordo] designaron los Españoles un grupo interesante de aves americanas, por tener algunas de sus especies semejanza en cuanto al color, con los tordos de Europa [Sturnidæ?], de los que sin embargo son de géneros enteramente distintos."

1871. Brewer, T. M. [Remarks on exhibition of a nest of Icterus baltimore.] < *Proc. Boston Soc. Nat. Hist.*, xiii, 1871, pp. 411, 412.

1871. Coues, E. The Yellow-headed Blackbird [Xanthocephalus icterocephalus]. < *Am. Nat.*, v, 1871, pp. 195–200, with a fig.

Extended biography of this species, with allusions to various other birds observed in Kansas.

1871. Coues, E. Bullock's Oriole [Icterus bullocki]. < *Am. Nat.*, v, 1871, pp. 678–682, fig. 120.

Extended biography.

1871. Coues, E. Singular albino [of Dolichonyx oryzivorus]. < *Am. Nat.*, v, 1871, p. 733.

1871. Gillman, H. Albino Swamp Blackbird [Agelæus phœniceus]. < *Am. Nat.*, v, 1871, p. 251.

1871. Newman, E. On the Occurrence of the American Meadow Lark (Alauda [Sturnella] magna of Wilson) in Great Britain. < *Zoologist*, 2d ser., vi, 1871, pp. 2557–2560.

1872. BARCENA, M. Apuntes para la ornitología Mexicana.—Costumbres del Quiscalus macrourus. < *La Naturaleza*, ii, 1872, pp. 203–207.

1872. BREWER, T. M. [Note on the North American Forms of Quiscalus.] < *Proc. Boston Soc. Nat. Hist.*, xiv, 1872, p. 205.

1872. HALDEMAN, S. S. Note of Icterus baltimore [written in musical notation]. < *Am. Nat.*, vi, 1872, p. 234.

1872. HOLTZ, L. Ueber Molobrus-Eier, zu Cantagallo in Brasilien von Herrn C. Euler gesammelt. < *J. f. O.*, 1872, pp. 193–201, pl. 1, fig. i.

In continuation of the subject from *op. cit.*, 1870, pp. 15–19. The species are not given. Eggs are figured, pl. 1, f. *a–e*.

1872. KEDNEY, H. S. Occurrence of the Orchard Oriole [Icterus spurius] in South Carolina. < *Am. Nat.*, vi, 1872, pp. 49–51.

With observations on its habits.

1872. LAWRENCE, G. N. Descriptions of New Species of Birds of the Genera Icterus and Synallaxis. < *Ann. Lyc. Nat. Hist. N. Y.*, x, 1872, pp. 184–186.

Icterus formosus, p. 184 (Tehuantepec).

1872. LOCKWOOD, S. The Baltimore Oriole [Icterus baltimore] and Carpenter-Bee. < *Am. Nat.*, vi, 1872, pp. 721–724.

Popular account of the manner in which the bird feeds upon *Xylocopa carolina*.

1872. SCLATER, P. L. [Exhibition of a nest of the Tijereta (Milvulus Tyrannus) containing eggs of Molothrus bonariensis.] < *P. Z. S.*, 1872, p. 862.

1873. CABANIS, J. [Ueber Ostinops angustifrons Spix, O. atrovirens d'Orb., und O. atrocastaneus, n. sp.] < *J. f. O.*, 1873, pp. 308, 309.

1873. FOULKS, O. D. The Red-winged Blackbird [Agelæus phœniceus]. < *Am. Sportsman*, iii, 1873, p. 92.

1873. NEWMAN, E. Molothrus sericeus in Devon. < *Zoologist*, 2d ser., viii, 1873, p. 3411.

Presumed to have escaped from confinement.

1873. ORTON, J. Meadow Lark [Sturnella magna] with Four Legs. < *Am. Nat.*, vii, 1873, p. 175.

1874. "D. S." A Semi-domesticated Blackbird. < *Am. Sportsman*, iv, 1874, p. 28.

1874. "F. S. B." The Western lark—Strunella Neglecta [*i. e.*, Sturnella magna, var. neglecta]. < *Forest and Stream*, ii, Apr. 9, 1874, p. 134.

1874. HUDSON, W. H. Notes on the Procreant Instincts of the three Species of Molothrus found in Buenos Ayres. < *P. Z. S.*, xlii, 1874, pp. 153–174.

An extended and interesting article, giving much information, with suggestive deductions.

1874. JENKS, J. W. P. Instinct or Reason. < *Am. Sportsman*, v, Dec. 5, 1874, p. 145.

Sagacity of Orioles (*Icterus baltimore*) in giving extra support to their nest after experience had proved that its fastenings were weak; also, departure from type of architecture to meet an emergency in the case of the Boat-tailed Grakle (*Quiscalus major*).

1874. MAYNARD, C. J. Orchard Oriole (Icterus spurius). < *Am. Sportsman*, iv, 1874, p. 155.

Occurring at Ipswich, Mass., and breeding at West Meriden, Conn.

1874. MEEHAN, T. [Frugivorous] Habits of the Orchard Oriole [Icterus spurius]. < *Proc. Acad. Nat. Sci. Phila.*, xxvi, 1874, p. 84.

1874. SCLATER, P. L. On Centropsar, an apparently new Form of the Family Icteridæ. < *P. Z. S.*, xlii, Mar. 3, 1874, pp. 175, 176, pl. xxvi, woodcc.

Centropsar mirus (sane mirabile dictu!), g. sp. n.; cf. *P. Z. S.*, 1875, p. 380.

1875. BATTY, J. H. Natural [history] researches in the Sierras. < *Rod and Gun*, vi, June 5, 1875, p. 146.

Song and characteristics of *Sturnella magna* var. *neglecta*.

1875. COUES, E. Albino Black-bird [Xanthocephalus icterocephalus]. < *Rod and Gun*, vi, Apr. 10, 1875, p. 24.

1875. "C. S. W." [INGERSOLL, E.] [Information as to the different birds in whose nests Molothrus ater has been observed to lay.] < *Forest and Stream*, v, Dec. 16, 1875, p. 292.

1875. DAVIS, F. J. The Rusty Blackbird. (S[colecophagus]. ferrugineus.) < *Oölogist*, i, pt. 5, 1875, pp. 37, 38, with figure.

1875. DUBOIS, A. Descriptions de quelques Oiseaux Nouveaux. < *Bull. Acad. Roy. Belgique*, 2^e sér., xl, No. 12, Dec., 1875, pp. 13–17.

Only seen separate.—Of *Icteridæ* there are here described: *Icterus virescens*, p. 15, Mexico; *Icterus xanthornus* var. *dubusii*, p. 16, Panama; and *I. x.* var. *marginalis*, p. 17, Panama. The article also describes *Cyanocitta yucatanica*, sp. n., p. 13.

1875. F[REEMAN], C. M. The Baltimore Oriole [Icterus baltimore]. < *Oölogist*, i, 1875, p. 46.

1875. SCLATER, P. L. [Remarks on exhibition of the typical specimen of Centropsar mirus.] < *P. Z. S.*, June 1, 1875, p. 380.

Genus fictitum; avis artefacta, capite *Icteri* (*auduboni*?), caudâ *Agelæi phœnicei*, pedibus *Eremophilæ alpestris*, instructa. Cf. *J. f. O.*, xxii, 1874, p. 458.

1875. ANON. A Word for the Birds [Icteridæ]. < *Rod and Gun*, vi, Sept. 11, 1875, p. 364.

Reprint from Boston "Advertiser" concerning utility of Blackbirds in destroying army worms.

1876. FOWLER, H. G. Asylums of the Cow-bird [Molothrus ater]. < *Forest and Stream*, vii, Aug. 10, 1876, p. 4.

List of birds in whose nests eggs of this species have been found; to which is added editorial [INGERSOLL, E.] note.

1876. "FRANK." Black Birds [Icteridæ of New York State]. < *Rod and Gun*, viii, July 15, 1876, p. 244.

1876. INGERSOLL, E. A Summer Bird [Icterus baltimore]. < *Harper's New Monthly Mag.*, liii, p. 574–578; illustration of nest.

1876. RAGSDALE, G. H. Nesting of the Hooded Oriole [Icterus cucullatus] in Cooke County, Texas. < *Oölogist*, ii, No. 8, 1876, p. 57.

1876. ANON. A Golden Robin [Icterus baltimore]. < *Rod and Gun*, viii, Aug. 19, 1876, p. 325.

Successful amputation of wild oriole's leg. From "Boston Post".

1877. BREWER, T. M. [Remark on the eggs of Molothrus bonariensis.] < *Proc. Boston Soc. Nat. Hist.*, xix, 1877, p. 76.

1877. W[ILLCOX], J. Crow Blackbirds [Quiscalus versicolor] eat fish. < *Forest and Stream*, viii, Apr. 5, 1877, p. 129.

1877. MERRILL, J. C. Notes on [the habits of] Molothrus æneus, Wagl. < *Bull. Nutt. Ornith. Club*, ii, No. 4, Oct., 1877, pp. 85–87.

1877. RAGSDALE, G. H. The Nesting of the Hooded Oriole [Icterus cucullatus] in Cooke Co., Texas. < *Forest and Stream*, vii, Feb. 1, 1877, p. 404.

From *Oölogist*, ii, 1876, p. 57.

1877. WILLCOX, J. On the [fish-eating] Habits of Quiscalus purpureus. < *Proc. Phila. Acad. Nat. Sci.*, 1877, p. 38.

1878. BAILEY, T. S. That Nondescript Egg. < *The Oölogist*, iv, No. 4. June, 1878, p. 25.

Decided to be that of *Quiscalus purpureus*. The article also gives an account of a hybrid between *Gallus bankivi* var. and *Numida meleagris*.

1878. BAILEY, T. S. A Stray Egg. < *The Oölogist*, iv, No. 3, May, 1878, p. 19.

Of *Molothrus ater*, in nest of *Spizella pusilla*.

1878. BARBER, E. A. Ornithological Notes. < *Am. Nat.*, xii, No. 7, July, 1878, pp. 477, 478.

On peculiarities in oviposition of *Molothrus ater* and *Sturnella magna*.

1878. [WILLARD, S. L.] Flocking of Quiscalus purpureus. < *The Oölogist*, iv, No. 2, Apr., 1878, p. 15.

1878. [WILLARD, S. L.] The Cow-bird [Molothrus ater] a Polygamist. < *The Oölogist*, iv, No. 1, Mar., 1878, p. 7.

1878. [WILLARD, S. L.] A Nondescript Egg. *The Oölogist*, May, 1878, pp. 17–19.

Supposed to be the produce of *Turdus migratorius* × *Quiscalus purpureus!*

1879. BREWER, T. M. The Cow-Blackbird of Texas and Arizona (Molothrus obscurus). < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 123.

Dr. J. C. Merrill's correction of "a grave error" of the writer's respecting the eggs of this bird.

1879. [CHAPMAN, W. L.] Albinos [Scolecophagus cyanocephalus?]. < *Forest and Stream*, xiii, Dec. 18, 1879, p. 907.

1879. DUGÈS, E. [Flocking of Molothrus ater (var. obscurus?).] < *The Oölogist*, iv, No. 10, May, 1879, p. 84.

Quoted from a letter to the Smithsonian Institution, published by S. F. Baird in *Harper's Weekly*: refers to a certain flight supposed to have been 12,000 yards in length, six yards wide, and probably over a yard deep, estimated to contain 9 or 10,000,000 individuals.

1879. EDITORIAL. [Eggs of Molothrus ater in Nests of Turdus migratorius and Quiscalus versicolor.] < *The Oölogist*, iv, No. 10, May, 1879, pp. 78, 79.

Two untitled paragraphs, from Rev. J. Walton and C. W. Strumberg, with editorial comment.

1879. GRAY, A. F. Albino Bobolink [Dolichonyx oryzivorus]. < *Science News*, i, No. 19, Aug. 1, 1878, p. 304.

1879. INGERSOLL, E. Breeding Habits of the Hooded Oriole [Icterus cucullatus]. < *The Oölogist*, iv, No. 7, Feb., 1879, pp. 49, 50.

From advance sheets of his "Nests and Eggs of American Birds."

1879. INGERSOLL, E. Breeding Habits of obscure American Birds. The Hooded Oriole [Icterus cucullatus]. < *The Field* (London), liv, No. 1,394, Sept. 13, 1879, p. 374.

1879. RATHBUN, F. R. Golden Bird of Silver Song [*i. e.*, Icterus baltimore]. < *Auburn (N. Y.) Daily Advertiser*, May 21, 1879.

Popular account of habits.

1879. SENNETT, G. B. The Great-tailed Grackle (Quiscalus macrurus). < *The Oölogist*, iv, No. 7, Feb., 1879, pp. 53, 54.

Quoted from his paper in *Bull. U. S. Geol. and Geogr. Surv. Terr.*, iv, No. 1, 1878, pp. 1–66; relating to the habits of the bird as observed in Texas.

1879. [WILLARD, S. L.] Two Nests of Icterus baltimore. < *The Oölogist*, iv, No. 6, Jan., 1879, p. 42.

1879. [WILLARD, S. L.] [Eggs of Molothrus ater in nest of Turdus migratorius.] < *The Oölogist*, iv, No. 9, Apr., 1879, p. 65.

Tanagridæ.

1777. Anon. Description d'un nouveau Gros-bec de la Guiane. < *Obs. sur la Phys.* (*Rozier*), x, 1777, pp. 244, 245.

Pas vue moi-même.—N'est-ce pas la *Loxia erythromelas* Gm., c'est-à-dire, *Pitylus erythromelas?*

1792. Bosc, L. Tanagra humeralis. < *Journ. d'Hist. Nat.*, ii, 1792, pp. 179, 180.

Not seen.—I do not know that this comes under *Tanagridæ* as now understood.

1805–18—. Desmarest, A. G. Histoire Naturelle | des | Tanagras, | des Manakins et des Todiers, | par Anselme-Gaëtan Desmarest; | Avec figures imprimées en couleur, d'après les dessins de Mademoiselle | Pauline de Courcelles, élève de Barraband. | — | Paris, | Garnery, Rue de Seine; | Delachaussée, Rue de Temple, N.° 37. | XIII.=1805. gr. folio, not paged, 72 pll. not numbered.

Published in 12 livraisons, 1805 being the date of the first. The plates, by Mlle. de Courcelles (whom Temminck afterward knew very well as Mme. Knip), are very fine; Desmarest's letterpress is not specially noteworthy. The work, however, is "classic". By some fantasy, or marvellous oversight, in punishment for which the work ought to be banished from good society, not only is the text unpaged, but also are the plates unnumbered. The only clue by which they can be cited is the indirect avis servant de table at the end. According to this, the following is the order of the plates: 1. *Tanagra tatao.* 2. *Motacilia velia.* 3, 4. *Tanagra tricolor.* 5. *T. mexicana.* 6, 7. *T. gyrola.* 8, 9. *T. punctata.* 10. *T. cayana.* 11. *T. peruviana.* 12, 13, 14. *T. gularis.* 15, 16. *T. episcopa.* 17, 18. *T. archepiscopus, nob.* 19, 20. *Pipra musica.* 21, 22, 23. *Tanagra violacea.* 24, 25. *T. chlorotica.* 26. *T. cayenensis.* 27. *Euphonia olivacea, nob.* 28, 29. *Tanagra brasilia.* 30, 31. *Tanagra jacapa.* 32, 33. *T. mississipensis* (sic). 34. *T. rubra.* 35, 36, 37. *T. olivacea* Gm.!!! 38, 39, 40. *T. silens* Lath. 41. *T. pileata.* 42. *T. atra.* 43. *T. magna.* 44. *T. guinanensis.* 45, 46. *T. nigerrima.* 47, 48, 49. *T. cristata.* 59, 51, 52, 53. *Pipra pareola.* 54; 55, 56, 57. *P. aureola.* 58. *P. gutturosa, nob.* 50. *P. leucocapilla.* 60, 61. *P. erythrocephala.* 62–64. *P. serena.* 63–65. *P. gutturalis.* 66. *P. albifrons.* 67. *Todus viridis.* 68. *T. cinereus.* 69. *T. griseus, nob.* 70. *T. maculatus, nob.* 71. *T. sylvia, nob.* 72. *T. platyrynchos* (sic). All these, except those marked nob. and one of Latham, are ascribed to Gmelin; but the identification, in some cases, is very wild.—The genera *Euphonia* and *Ramphocelus* are new.

1826. Swainson, W. A Monograph of the genus Tachyphonus, a group of Birds belonging to the Tanagræ L. < *Quart. Journ. Sci. Lit. Arts Roy. Inst.*, xx, 1826, pp. 60–69. (*Féruss. Bull.*, 2e sect., xi, 1827, pp. 111–113.)

Not seen in this form; there is an edition in *Isis*, 1833, pp. 934, 935.

1827. Lesson, [R. P.] Monographie du genre Tachyphonus, . . . ; par William Swainson. . . . < *Féruss. Bull.*, 2e sect., xi, 1827, pp. 111–113.

Précis de cet ouvrage.

1829. Lund, P. W. De genere Euphones præsertim de singulari canalis intestinalis structurâ in hocce avium genere, auctore Dr. P. W. Lund. 8vo. Havniæ, 1829.

Not seen.—Cf. *Froriep's Notizen*, 1830, No. 573; *Férussac's Bull.*, 2e sect., xxii, 1830, p. 121.

1831. Anon. De genere Euphones, praesertim de singulari canalis intestinalis structura in hocce avium genere, auct. Dr. P. W. Lund. Havniæ ap. Brummer. 29. 8. 32. tab. < *Oken's Isis*, Bd. xxiv, 1831, pp. 733, 734.

Uebersicht und Auszug.

1833. Bonaparte, C. L. Ueber einen neuen Ramphocelus [passerinii] aus Cuba. < *Oken's Isis*, Bd. xxxvi, Jahrg. 1833, p. 755.

1833. Swainson, W. Monographie von Tachyphonus. < *Oken's Isis*, Jahrg. 1833, pp. 934, 935.

Auszug aus d. *Quart. Journ. Sci. Roy. Inst.*, xx, 1826, pp. 60–69. Diagnostik von 9 Arten.

1834. Sundevall, C. J. Några arter af Fogelslägtet Euphone. < *Kongl. Svensk. Vetensk.-Acad. Handl. for* 1833, 1834, pp. 308–312, pll. 10, 11.

E. ænea, p. 309, pl. 11, f. 4; *E. xanthogaster*, p. 310, pl. 10, f. 1; *E. chlorotica*, p. 310, pl. 10 f. 2, 3; *E. aurora*, p. 312, pl. 11, f. 5.

1835. Jameson, R. [Tanagra nigricephala, n. sp.] < *L'Institut*, iii, 1835, p. 316.

Not seen.—This is the Jamaican *Spindalis* (Jard., 1837) *nigricephala*; see Jard. & Selby, *Ill. Orn.*, pl. 9; Des Murs, *Ic. Orn.*, pl. 40; Gosse, *Ill. B. Jam.*, pl. 56.

1837. Lafresnaye, F. de. Notice sur le groupe des Tangaras Rhamphocèles et sur toutes les espèces qui le composent, et description d'une nouvelle espèce de cette division. < *Guér. Mag. de Zool.*, 7^{e} année, 1837, classe ii, notice lxxxi, pp. 1–4, pl. lxxxi.

Six espèces de cette division. Pl. 81, *Rhamphocelus dimidiatus*, sp. n.

1838. Bonaparte, C. L. Nouvelle espèce d'oiseau du genre Rhamphocèle [Rhamphocelus icteronotus]. < *Revue Zoologique*, i, 1838, p. 8.

1838. Lafresnaye, [F.] de. Nouvelle espèce d'oiseau du genre Rhamphocèle [Rhamphocelus luciani]. < *Revue Zoologique*, i, 1838, p 54.

1839. Dubus de Ghisignies, V. B. Description d'un Tanagra nouveau [T. lunulata]. < *Bull. Acad. Bruxelles*, vi^{a}, 1839, p. 439, pl. (*L'Inst.*, vii, No. 310, 1839, p. 428.)

Not seen.

1839. Lafresnaye, F. de. G. Tangara. Tanagra. Linné. (Groupe des Rhamphocèles, Rhamphocelus.) T. (Rh.) de Lucien. T. (Rh.) Luciani. Lafresn. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1839, Ois., pp. 1, 2, pl. 2.

1839. Trudeau, J. Description of the White-winged Tanager, (Pyranga leucoptera.) < *Journ. Acad. Nat. Sci. Phila.*, viii, 1839, p. 160.

1840. Passerini, [C.] [Note sur la propagation de la Paroaria cucullata en Europe.] < *Revue Zoologique*, iii, 1840, p. 28.

1841. Boissonneau, —. G. Tangara. Tanagra. Linné. (Groupe des Tangaras Euphones.) T. de Vassor. T. vassorii. Boissonneau. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1841, Oiseaux, pp. 1, 2, pl. 23.

Rev. Zool., 1840, p. 4.

1841. Hartlaub, [G.] Description d'une nouvelle espèce du genre Tangara [T. iridina]. < *Revue de Zoologique*, iv, 1841, p. 305.

1841. Lafresnaye, [F.] de. [Tangara iridina Hartl. = Tanagra velia Vieill.] < *Revue Zoologique*, iv, 1841, pp. 365–367.

1841. Passerini, C. Notizie | sulla moltiplicazione in Firenze negli anni 1837. 1838. 1839 | dell'Uccello Americano | Paroaria cucullata | chiamato volgarmente Cardinale | Lette in Pisa | alla sezione di Zoologia della prima riunione degli Scienziati Italiani | il 7 Ottobre 1839 | da Carlo Passerini | [ec., 10 linie] | — | Firenze | tipografia Pezzati | 1841 folio. pp. 8, 1 pl.

La tavola colorata, dei cinque figure, mostra gl' uccelli (il maschio e la femmina), il piccolo, il nido, e l' uova. Cf. *Rev. Zool.*, v, 1842, pp. 280, 281.

1842. Lafresnaye, F. de. Sur quelques Oiseaux. < *Revue Zoologique*, v, 1842, pp. 69, 70.

Certhiparus, g. n., p. 69; *Pyranga bivittata*, sp. n., p. 70.

1843. Lafresnaye, [F.] de. G. Tangara. Tanagra. L. T. (Aglaia) de Parzudaki. T. (Aglaia) Parzudaki. Lafr. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1843, Ois., pp.. 1, 2, pl. 41.

Rev. Zool., 1843, p. 97.

1843. [Lafresnaye, F. de.] G. Tangara. Tanagra. L. T. (Euphone) de prêtre. T. (Euphonia) Pretrei. De Lafr. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1843, Ois., pp. 1, 2, pl. 42.

1843. [Lafresnaye, F. de.] G. Tangara. Tanagra. L. T. (Aglaia) vert noiret. T. (Aglaia) nigroviridis. De Lafr. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1843, Ois., pp. 1, 2, pl. 43.

R. Z., 1843, pp. 97 and 69.

1844. Buckler, C. Note on the occurrence of the Red-breasted Tanager [Ramphopis purpureus], near Cheltenham. < *Zoologist*, ii, 1844, p. 444.

1844 Lafresnaye, [F.] de. G. Lamprotes. Swainson. L. albo-cristatus. De Lafresnaye. < *Guér. Mag. de Zool.*, 2^{e} sér., année 1844, Oiseaux, pp. 1, 2, pl. 50.

1846. Cabot, S., Jr. [Pyranga roseo-gularis, sp. n.] < *Proc. Boston Soc. Nat. Hist.*, ii, 1846, p. 187.

1846. Cabot, S., Jr. Description of Pyranga roseo-gularis, (Rose-throated Tanager.) < *Journ. Boston Soc. Nat. Hist.*, v, pt. iii, 1846, p. 416.

1846. Lafresnaye, F. de. Sur une nouvelle espèce d'Euphone (Euphonia [cinerea]). < *Revue Zoologique*, ix, 1846, pp. 277, 278.

1846. Lafresnaye, F. de. Sur le Ramphocelus Icteronotus du prince Bonaparte. < *Revue Zoologique*, ix, 1846, pp. 365–370.

Avec synopsis de 10 esp. du genre.

1846. Lafresnaye, [F.] de. Sur le Lanion huppé, Lanio cristatus de Vieillot, et sur une nouvelle espèce du genre Lanion. < *Revue Zoologique*, ix, 1846, pp. 202–206.

Synopsis de six espèces—*Lanio aurantius*, p. 204, sp. n.

1847. Cabot, S., Jr. Pyranga roseo-gularis, a new species from Yucatan. < *Am. Journ. Sci.*, iii, 1847, pp. 436, 437.

From *Proc. Bost. Soc. Nat. Hist.*, Dec., 1846, p. 187.

1847. Cabot, S., Jr. Pyranga roseo-gularis, a new species from Yucatan. < *Ann. Mag. Nat. Hist.*, xx, 1847, p. 143.

From *Am. Journ. Sci.*, 1847, p. 437.

1847. Hartlaub, [G.] [Rectification de la synonymie de Tanagra zenoides Lafr.] < *Revue Zoologique*, x, 1847, pp. 417, 418.

1847. Lafresnaye, F. de. Sur les Tanagras gyrola Gmel. (Rouverdin Vieillot) et Zena Gmel. (Bahamensis Brisson) et quelques espèces voisines faciles a confondre avec elles. < *Revue Zoologique*, x, 1847, pp. 275–281.

1848. Cassin, J. Description of a new Tanagra [nigro-aurita], in the Collection of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iv, 1848, pp. 85, 86.

1849. [Jardine, W.] Tanagra cana, Swainson. < *Jard. Contrib. Ornith.*, 1849, p. 19, pl. xvi.

1850. Sclater, P. L. [Description of Calliste chrysonota, sp. n.] < *Jard. Contrib. Ornith.*, 1850, p. 50, pl. li.

1851. Bonaparte, C. L. Note sur les Tangaras, leurs affinités, et descriptions d'espèces nouvelles. < *Compt. Rend. de l'Acad. Sci.*, xxxii, 1851, pp. 76–83.

Calliste bourcieri, *C. phoenicotis*, *C. icterocephala*, *C. guttulata*, p. 76; *Tanagrella rufigula*, p. 77; *Callospiza boliviana*, p. 80, spp. nn.

The paper is substantially the same (though with some modification) as one in *R. M. Z.* of same date (see next title). It is full of mishaps, many of which were exposed by Sclater, *Jard. Contr. Orn.*, 1851, pp. 93–96.

1851. Bonaparte, C. L. Note sur les Tangaras, leurs affinités et descriptions d'espèces nouvelles. < *Rev. et Mag. de Zool.*, iii, Mar., 1851, pp. 129–145; Apr., 1851, pp. 168–180.

Calliparœa (g. n.) *bourcieri*, *C. phoenicotis*, *Chrysothraupis icterocephala*, p. 129; *Ixothraupis* (g. n.) *guttulata*, *Tanagrella rufigula*, p. 130, spp. nn.; *Chalcothraupis*, g. n., p. 131. L'auteur donne encore plusieurs rectifications relatives aux espèces de la famille et à leur synonymie. *Procnias*, 2 esp. *Pipræida*, 2 esp. *Iodopleura*, 5 esp. *Euphone*, 13 esp.; *E. brevirostris*, *E. pumila*, p. 136, spp. nn. *Pyrrhuphonia* (g. n., p. 137), 2 esp. *Chlorophonia* (g. n., p. 137), 3 esp. *Cyanophonia* (g. n., p. 138), 2 esp. *Calliste*, 8 esp. *Tatao* (g. n., p. 141), 7 esp. *Chrysothraupis*, 11 esp. *Ixothraupis*, 3 esp. *Chalcothraupis*, 7 esp. *Callospiza*, 4 esp.; *C. boliviana*, sp. n., p. 169; *Tanagra*, 8 esp. *Dubusia gigas*, sp. n., p. 171; *Tachyphonus*, 10 esp.; *T. beauperthuyi*, p. 175, sp. n. *Phœnicothraupis*, 2 esp. *Lanio*, *Lamprotes*, *Sericossypha*, *Pyranga*, *Ramphocelus*; *Dulus*; *D. poliocephalus*, p. 178, sp. n. Enfin, description d'une Alouette d'Afrique! *Alauda cinnamomea*, p. 179, sp. n.—Voir *Jard. Contr. Orn.*, 1851, pp. 93–96.

1851. Lafresnaye, F. de. Sur l'oiseau nommé par Brisson Tangara de Saint-Domingue, Tanagra Dominicensis, Tanagra Dominica, par Linné, figuré par Buffon, pl, enl. 156, f. 2, et dont Vieillot a fait son genre Esclave (Dulus), sous le nom de Dulus palmarum. < *Rev. et Mag. de Zool.*, iii, 1851, pp. 583–590.

There is a curious "snag" here. *Cf.* Strickl., *Jard. Contr. Orn.*, 1851, pp. 103, 104. See Gray's *Handlist*, Nos. 5827 and 7025.

1851. SCLATER, P. L. On Some New Species of Calliste. < *Jard. Contrib. Ornith.*, 1851, pp. 21–25, pl. lxix.

C. virescens, p. 22, pl. lxix, f. 1; *C. xanthogastra*, p. 23; *C. chrysophrys*, p. 24, pl. lxix, f. 2; with chars. of *C. punctata*, Linn.

1851. SCLATER, P. L. I. Remarks on Prince Canino's Note, "Sur les Tangaras," in the Revue et Magazine de Zoologie, March and April, 1851. < *Jard. Contrib. Ornith.*, 1851, pp. 93–96.

Rectifications of synonymy, &c.

1851. SCLATER, P. L. II. On the Genus Tanagrella. < *Jard. Contrib. Ornith.*, 1851, pp, 97, 98, pl. lxxiv.

3 spp. The pl. represents *T. calophrys*.

1851. SCLATER, P. L. III. On the genus Chlorochrysa, Bp. < *Jard. Contrib. Ornith.*, 1851, pp. 99–101, pl. lxxiii.

2 spp. Pl. lxxiii, up. fig., *C. calliparœa;* low. fig., *C. phœnicotis.*

1851. SCLATER, P. L. Synopsis of the Tanagrine genus Calliste, with Descriptions of New Species. < *Jard. Contrib. Ornith.*, 1851, pp. 49–73, pl. lxx.

48 spp., divided in 8 groups.: *C. leucotis*, p. 58, *C. castaneoventris*, *C. ruficapilla*, p. 61; *C. castanonota*, p. 63, *C. lunigera*, p. 65, pl. lxx, f. 2, *C. lamprotis*, p. 65, spp. nn. The other fig. of pl. lxx is *C. icterocephala* Bp.

1851. SCLATER, P. L. Synopsis of the genus Euphonia, with descriptions of New species. < *Jard. Contrib. Ornith.*, 1851, pp. 81–92, pl. lxxv.

23 spp. + 3 doubtful. *E. melanura*, p. 86; *E. pyrrhophrys*, p. 89, pl. lxxv, f. 2, spp. nn. The other fig. of same pl. is *E. nigricollis*.

1851. STRICKLAND, H. E. On two New Species of Euphonia, Desm., allied to E. chlorotica. < *Jard. Contrib. Ornith.*, 1851, pp. 71–73.

E. trinitatis, *E. strictifrons*, p. 72, with synopsis of 5 spp. of the genus.

1851. STRICKLAND, H. E. On the Type of the genus Dulus, Vieill. < *Jard. Contrib. Ornith.*, 1851, pp. 103, 104.

Tanagra dominica L., nec *Turdus palmarum* L. *Cf.* Lafr., *Rev. Mag. Zool.*, iii, 1851, pp. 583–590.

1852. STRICKLAND, H. E. Description of Iridosornis dubusia (Bon.). < *Jard. Contrib. Ornith.*, 1852, pp. 127, 128, pl. xciv.

With important bibliographical criticism. The pl. is marked "*Pœcilornis rufivertex.*"

1853. LAFRESNAYE, F. DE. [Arremon mystacalis Scl. = A. albifrenatus Boiss. et Lafr.] < *Rev. et Mag. de Zool.*, v, 1853, pp. 62, 63.

1853. LAFRESNAYE, F. DE. Sur le genre Ramphocelus, Desm. et trois nouvelles espèces qui lui appartiennent. < *Rev. et Mag. de Zool.*, v, 1853, pp. 241–246.

Le genre doit être naturellement subdivisé en deux sections, d'après la forme du bec.: I. *Ramph. macrognathi* (11 spp.). II. *R. micrognathi* (5 spp.). *R. magnirostris*, *R. venezuelensis*, p. 243; *R. aterimus*, p. 244.

1854. LAFRESNAYE, F. DE. Mélanges Ornithologiques. < *Rev. et Mag. de Zool.*, vi, 1854, pp. 205–209.

The article relates chiefly to the "subgenus" *Chrysothraupis*, i. e., *Calliste*, pp. 205–208. *C. sclatteri*, (sic) p. 207, sp. n.

1854. SCLATER, P. L. Characters of some New or imperfectly-described Species of Tanagers. < *P. Z. S.*, xxii, 1854, pp. 95–98, pll. (Aves), lxiv, lxv.

Arremon axillaris, *Ramphocelus dorsalis* Bp. Mss., *Buthraupis chloronota*, pl. lxiv, p. 97; *Euphonia concinna*, pl. lxv, f. 2; *E. hirundinacea*, pl. lxv, f. 1, p. 98.

1854. SCLATER, P. L. Descriptions of Two New Tanagers in the British Museum. < *P. Z. S.*, xxii, 1854, pp. 157, 158, pll. (Aves) lxviii, lxix.

Chlorospingus melanotis, p. 157, pl. lxviii; *Tachyphonus xanthopygius*, p. 158, pl. lxix.

1854. SCLATER, P. L. Description of a new Tanager of the Genus Calliste [C. venusta]. < *P. Z. S.*, xxii, 1854, p. 248.

1854. SCLATER, P. L. Description of a second species of the Genus Procnias [P. occidentalis]. < *P. Z. S.*, xxii, 1854, p. 249.

1854. Sclater, P. L. On a new species of Tanager [Phœnicothraupis gutturalis] in the British Museum. < *Ann. Mag. Nat. Hist.*, 2d ser., xiii, pp. 24, 25.

Phœnicothraupis gutturalis, p. 25; with synopsis of 3 spp. of the genus.

1854. Sclater, P. L. Tanagrarum | Catalogus Specificus, | auctore | Philippo Lutley Sclater, A. M. | Soc. Zool. Lond. Socio. | Basingstoke, | 1854. 1 vol. 8vo. pp. 16.

Exhibens nomina generum 41, specierum circ. 240, adjectis cuique auctore et patria, necnon annotationibus 15 ad calcem opusculi.

1855. Sclater, P. L. Descriptions of four new or little-known Tanagers. < *P. Z. S.*, xxiii, 1855, pp. 83–85, pll. (Aves) lxxxix–xcii.

Arremon erythrorhynchus, p. 83, pl. lxxxix; *Tachyphonus xanthopygius*, p. 83, pl. xc; *Tanagra notabilis*, "Jardine," p. 84, pl. xci; *Saltator arremonops*, "Jardine," p. 84, pl. xcii.

1855. Sclater, P. L. Description of a newly discovered Tanager of the Genus Buarremon [leucopterus]. < *P. Z. S.*, xxiii, 1855, p. 214, pl. (Aves) cix.

1855. Sclater, P. L. Characters of two New Species of Tanagers. [Dubusia auricrissa, Iridornis porphyrocephala, pl. cx.] < *P. Z. S.*, xxiii, 1855, pp. 227, 228, pl. (Aves) cx.

1855. Sclater, P. L. Characters of some New or imperfectly-described Species of Tanagers. < *Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, pp. 140–143.

From *P. Z. S.*, Mar. 28, 1854, pp. 95–98, *q. v.*

1855. Sclater, P. L. Description of a new Tanager of the Genus Calliste [venusta]. < *Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, p. 150.

From *P. Z. S.*, Nov. 14, 1854, p. 248.

1855. Sclater, P. L. Descriptions of Two New Tanagers in the British Museum. < *Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, pp. 377, 378.

From *P. Z. S.*, July 25, 1854, pp. 157, 158, *q. v.*

1855. Sclater, P. L. Description of a second species of the genus Procnias [occidentalis]. < *Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, pl. 380.

From *P. Z. S.*, Nov. 14, 1854, p. 249.

1856. Sclater, P. L. Note on the Zoological Appendix to the 'Report of the U. S. Naval Astronomical Expedition to the Southern Hemisphere,' and on the Geographic Range and Distribution of the Tanagrine Genera Calliste and Euphonia. < *P. Z. S.*, xxiv, 1856, pp. 18, 19.

The "Note" refers to a probable mistake in the work named respecting the alleged Chilian habitat of *Calliste cyaneicollis*, *C. gyroloides*, and *Euphonia rufiventris*; states that the *C.* "*larvata*" figured on pl. 18, f. 2, is not that species, but *C. thalassina*. The article concludes with a tabular exhibit of the geographical distribution of 48 spp. of the genus *Calliste*.

1856. Sclater, P. L. Synopsis Avium Tanagrinarum.—A descriptive Catalogue of the known Species of Tanagers. < *P. Z. S.*, xxiv, 1856, pp. 64–94, 108–132, 230–281.

40 genn., 272 spp. Much synonymy and critical commentary. *Chlorospingus flaviventris*, p. 91; *Nemosia guirina*, *N. insignis*, p. 110; *N. auricollis*, p. 111; *Ramphocelus unicolor*, p. 128; *Calliste vieilloti*, p. 257; *C. cyanescens*, p. 260; *Euphonia fulvicrissa*, p. 276; *E. crassirostris*, p. 277, spp. nn.

1856. Sclater, P. L. Synopsis Avium Tanagrinarum. | A Descriptive Catalogue | of the known | Species of Tanagers. | By | Philip Lutley Sclater, M. A., F. Z. S., &c. | — | [From the Proceedings of the Zoological Society, | April 8, 1856.] | — | London: | printed by Taylor and Francis. | Red Lion Court, Fleet Street. | 1856. 1 vol. 8vo. pp. 127.

Treating 272 spp. under 40 genera, with synonymy, diagnosis, habitat, and criticism.

1856. Sclater, P. L. On a New Tanager of the Genus Calliste [rufigenis]. < *P. Z. S.*, xxiv, 1856, p. 311.

1856. Sclater, P. L. Description of a newly discovered Tanager of the genus Buarremon [leucopterus]. < *Ann. Mag. Nat. Hist.*, 2d ser., xviii, 1856, pp. 350, 351.

From *P. Z. S.*, Nov. 27, 1855, p. 214.

1856. Sclater, P. L. Characters of Two New Species of Tanagers. < *Ann. Mag. Nat. Hist.*, 2d ser., xviii, 1856, pp. 418, 419.

From *P. Z. S.*, Dec. 11, 1855, pp. 227, 228, *q. v.*

1856. SCLATER, P. L. Descriptions of four new or little-known Tanagers. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 515–517.

From *P. Z. S.*, May 22, 1855, pp. 83–85.

1857. SCLATER, P. L. Descriptions of some New Species of Tanagers. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, p. 272.

From *P. Z. S.*, May 13, 1856.

1857. SCLATER, P. L. Description of a New Tanager of the genus Euphonia [E. gouldi]. < *P. Z. S.*, xxv, 1857, p. 66, pl. (Aves) cxxiv.

1857. SCLATER, P. L. Description of a new Tanager [Euphonia gouldi]. < *Ann. Mag. Nat. Hist.*, 2d ser., xx, 1857, pp. 319, 320.

From *P. Z. S.*, Apr. 28, 1857, p. 66.

1857. SCLATER, P. L. A | Monograph | of | the Birds forming | the Tanagrine Genus Calliste; | illustrated by | coloured plates of all the known species. | By Philip Lutley Sclater, M. A., Fellow of Corpus Christi College, Oxford; | Fellow of the Zoological and Linnæan Societies of London; Correspondent | of the Academy of Natural Sciences of Philadelphia; Hon. Member of | the German Ornithological Society; Member of the British and | American Associations for the advancement of Science, etc. | [Publisher's monogram.] | London: | John Van Voorst, Paternoster Row. | MDCCCLVII. | 1 vol. 8vo. Map as frontispiece, pp. xviii, 104, pll. col'd xlv.

Letter-press general, relating to each one of 52 spp., introduced by an essay on the genus, which includes schema generum tanagrinorum, et callistarum schema geographicum. The *pls. are not numbered;* according to the text they are:—Pl. i, f. 1, *tatao*, p. 1; i, f. 2, *cœlicolor*, p. 3; ii, *yeni*, p. 5; iii, *tricolor*, p. 7; iv, *fastuosa*, p. 9; v, *festiva*, p. 11; vi, *cyaneiventris*, p. 13; vii, *thoracica*, p. 15; viii, *schranki*, p. 17; ix, *punctata*, p. 19; x, *guttata*, p. 21; xi, *xanthogastra*, p. 23; xii. *graminea*, p. 25; xiii, *rufigularis*, p. 27; xiv, f. 2, *aurulenta*, p. 29; xiv, f. 1, *sclateri*, p. 31; xv, *pulchra*, p. 33; xvi, *arthusi*, p. 35; xvii, *icterocephala*, p. 37; xviii, *vitriolina*, p. 39; xix, *cayana*, p. 41; xx, *cucullata*, p. 45; xxi, *flava*, ♂, ♀, p. 47; xxii, *pretiosa*, p. 49; xxiii, *melanonota*, ♂, ♀, p. 51; xxiv, *cyanoptera*, p. 53; xxv, *gyrola*, p. 55; xxvi, *gyroloides*, p. 57; xxvii, *desmaresti*, p. 59; xxviii, *brasiliensis*, p. 61; xxix, *flaviventris*, p. 63; xxx, *boliviana*, p. 67; xxxi, *atricærulea*, p. 69; xxxii, *ruficervix*, p. 71; xxxiii, *atricapilla*, ♂, ♀, p. 73; xxxiv, *argentea*, p. 75; xxxv, *cyanescens*, p. 79; xxxvi, *larvata*, p. 81; xxxvii, *nigricincta*, p. 85; xxxviii, *cyaneicollis*, p. 87; xxxix, *labradorides*, p. 89; xl, *rufigenis*, p. 91; xli, *parzudakii*, p. 93; xlii, *lunigera*, p. 95; xliii, *chrysotis*, p. 97; xliv, f. 1, *xanthocephala*, p. 99; xliv, f. 2, *venusta*, p. 101; xlv, *inornata*, p. 103.—*cyanolæma*, p. 43; *vieilloti*, p. 65; *nigriviridis*, p. 77; *francescae*, p. 83, are not figured. For additions, see *Ibis*, 1863, pp. 450–452.

1858. CASSIN, J. Description of a New Tanager [Calliste lavinia] from the Isthmus of Darien, and note on Selenidera Spectabilis, Cassin. < *Proc. Acad. Nat. Sci. Phila.*, x, 1858, pp. 177, 178.

1858. SCLATER, P. L. Description of a New Tanager of the Genus Euphonia [gouldi]. (P. Z. S., April 28, 1857.) < *J. f. O.*, vi, 1858, p. 73.

Uebersetzt, nebst Anmerk. d. Herausgebers.

1858. SCLATER, P. L. On some New or little-known Species of Tanagers from the Collection of M. Verreaux of Paris. < *P. Z. S.*, xxvi, 1858, pp. 293, 294.

5 spp.—*Chlorospingus castaneicollis*, p. 293; *Calliste cyanotis*, p. 294, spp. nn.

1858. SCLATER, P. L. On two New Species of Tanagers from the Collection of M. Verreaux of Paris. < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, pp. 472, 473.

From *P. Z. S.*, June 8, 1858, pp. 293, 294, *q. v.*

1858. SCLATER, P. L. On Euchætes coccineus, a new genus of Birds. < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, p. 494.

From *P. Z. S.*, Jan. 26, 1858, pp. 73, 74; there forming part of an article of wider scope.

1859. DUBOIS, C. F. Description et figure d'une nouvelle espèce d'Euphonia [cyanodorsalis]. < *Rev. et Mag. de Zool.*, xi, 1859, pp. 49, 50, pl. 2.

1860. JARDINE, W. [Euphonia cyanodorsalis Dubois = E. occipitalis, ♀, P. Z. S., 1856–270.] < *Ibis*, ii, 1860, p. 103.

1863. SALVIN, O. On a New Species of Calliste [dowii] from Costa Rica < *P. Z. S.*, xxxi, 1863, pp. 168, 169.

1863. SCLATER, P. L. List of recent Additions to the Genus Calliste. < *Ibis*, v, 1863, pp. 450–452, pl. xii.

5 spp. added to the 52 of his well-known monograph (1857); none new; *C. dowii* figured, pl. xii.

1864. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Cuculidæ, and Trochilidæ, with a Note on Panterpe insignis. < *Ann. Lyc. Nat. Hist. N. Y.*, viii, 1864, pp. 41–46.

The Tanagers here described are *Saltator fulviventris*, p. 41, Paraguay; *Tachyphonus tibiolis*, p. 41, Costa Rica; and *T. napensis*, p. 42, Rio Napo.

1864. LÉOTAUD, [A.] Description d'une nouvelle espèce du genre Tachyphonus [albispecularis]. < *Rev. et Mag. de Zool.*, xvi, 1864, pp. 129, 130.

1864. SALVIN, O. On a New Species of Calliste [dowii] from Costa Rica. < *Ann. Mag. Nat. Hist.*, 3d ser., xiii, 1864, pp. 104, 105.

From *P. Z. S.*, May 12, 1863, pp.

1865. BILLOT, E. Éducation des Cardinaux gris a tête rouge [Paroaria cucullata]. < *Bull. Soc. Acclim.*, 2e sér., ii, 1865, pp. 463–465.

1865. CASSIN, J. On some Conirostral Birds from Costa Rica in the Collection of the Smithsonian Institution. < *Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 169–172.

The article treats of 22 sp. of *Fringillidæ* and *Tanagridæ*; the new species described are three of the latter family, namely: *Arremon rufidorsalis*, *Buarremon crassirostris*, p. 170; *Euphonia anneæ*, p. 172.

1865. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126–135.

Buarrremon ocai, p. 126.

1865. SCHMIDT, MAX. Fortpflanzung des grauen Kardinals [Paroaria cucullata]. < *Zool. Gart.*, vi, 1865, pp. 12–16.

1865. SCLATER, P. L. Description of a new Species of Tanager of the genus Iridornis [reinhardti]. < *Ibis*, 2d ser., i, 1865, pp. 495, 496, pl. xi.

1868. SCLATER, P. L. On a recently discovered Tanager of the genus Calliste. < *Ibis*, 2d ser., iv, 1868, pp. 71, 72, pl. iii.

C. sclateri Cab. *nec* Less.; = *C. cabanisi* Scl., sp. renom.

1869. LINDEN, E. Zur Ehrenrettung des grauen Kardinals [Paroaria cucullata]. < *Zool. Gart.*, x, 1869, pp. 376–378.

1869. RIDGWAY, R. Notices of certain obscurely known Species of American Birds. < *Proc. Acad. Nat. Sci. Phila.*, xxi, June, 1869, pp. 125–135, woodcc.

II. On the uniformly red species of *Pyranga* (6 spp.), pp. 129–133. *P. cooperi*, sp. n., p. 130, fig. The article also treats of species of I., *Hylocichla* and III., *Quiscalus*.

1869. SCLATER, P. L., *and* SALVIN, O. Descriptions of Six New Species of American Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicariidæ, Tyrannidæ, and Scolopacidæ. < *P. Z. S.*, xxxvii, 1869, pp. 416–420, pl. xxviii.

The new Tanager is *Calliste florida*, p. 416, pl. xxviii.

1869. SCLATER, P. L., *and* SALVIN, O. Descriptions of three new Species of Tanagers from Veragua. < *P. Z. S.*, xxxvii, 1869, pp. 439, 440, pll. xxxi, xxxii.

Buthraupis arcæi, p. 439, pl. xxxi; *Tachyphonus chrysomelas*, p. 440, pl. xxxii; *Chlorospingus punctulatus*, p. 440.

1870. ALLEN, J. A. Summer Red Bird [Pyranga æstiva]. < *Am. Nat.*, iv, 1870, p. 56.

Its occurrence at Amherst, Mass., U. S. A.

1870. CABANIS, J. Ueber eine neue brasilische Nemosie oder Wald-Tangare, Nemosia Rourei nov. spec. < *J. f. O.*, xviii, 1870, pp. 459, 460 (pl. i, in Jahrg. 1871).

1870. SCHMIDT, MAX. Fortpflanzung des grauen Kardinals (Paroaria cucullata). < *Zool. Gart.*, xi, 1870, pp. 335–341.

1871. ORTON, J. Correction [of a misstatement respecting Euphonia elegantissima, Am. Nat., iv, 714]. < *Am. Nat.*, v, 1871, p. 378.

1873. Brehm, A. [Singvermogen der Euphonia.] < *J. f. O.*, xxi, 1873, pp. 71, 72.

1873. Salvadori, T. Descrizione di una nuova specie del genere Euphonia [mesochrysa]. < *Atti della Reale Accad. delle Sci. di Torino*, viii, 1873, p. 193.

1873. Sclater, P. L. Note on the Pyranga roseogularis of Cabot. < *Ibis*, 3d ser., iii, 1873, pp. 125, 126, pl. iii.

The colored plate, drawn by R. Ridgway, represents this beautiful species.

1874. Dubois, A. Remarque sur la variabilité de certaines espèces du genre Calliste. < *Bull. Acad. Roy. des Sci. de Belgique*, 2e sér., xxxviii, July, 1874, pp. 124——.

Pas vu moi-même.

1874. Lawrence, G. N. Descriptions of Two New Species of Birds of the Families Tanagridæ and Tyrannidæ. < *Am. Lyc. Nat. Hist. N. Y.*, xi, July, 1874, pp. 70–72.

The Tanagrine here described is *Phœnicothraupis cristatus*, p. 70, from Bogotá.

1875. Sclater, P. L. Remarks on the species of the Tanagrine Genus Chlorochrysa. < *Ibis*, 3d ser., v, 1875, pp. 464–467, pl. x.

3 spp.—Characters, synonomys, etc. Pl. x, *C. nitidissima*.

1876. Sclater, P. L. Description of a new Tanager of the Genus Calliste [melanotis], and Remarks on other recently discovered Species. < *Ibis*, 3d ser., vi, Oct., 1876, pp. 407–410, pl. xii.

C. melanotis, p. 408, pl. xi, fig. 1, from Rio Napo, Ecuador = *C. cyanotis* Scl., *Ibis*, 1863, p. 451.—Pl. xi, f. 2, *C. cyanotis*.—Criticisms on various other species. Cf. *Ibis*, 1863, p. 450, and 1868, p. 71.

1877. Pelzeln, A. v. Description of a new Species of Calliste, and of a . . . < *Ibis*, 4th ser., i, 1877, pp. 337–339.

The Tanager here named is *Calliste albertinæ*, p. 337, from Brazil (Natterer).

1878. Brewer, T. M. [Occurrence of Pyranga ludoviciana in Winter in Boston, Mass.] < *Ibis*, 4th ser., ii, Apr., 1878, pp. 204–206.

Statement occurring in an untitled letter on other subjects.

1878. Brewer, T. M. Rare Visitors. < *Forest and Stream*, x, March 14, 1878, p. 94.

Pyranga ludoviciana at Lynn, Mass., Jan. 20.

1878. Ingersoll, E. Dr. Coues's Idea of a Tanager. < *The Country*, i, Mar. 23, 1878, p. 310.

Extract from "The Birds of the Colorado Valley", pt. i, p. 352, with a note as to circumstances of its publication.

1878. Salvadori, T. [Identity of Euphonia chalcopasta S. & S. with E. mesochrysa Salvad.] < *Ibis*, 4th ser., ii, Apr., 1878, p. 200.

1879. Anon. Comparative Scarcity of the Scarlet Tanager [Pyranga rubra, in New York]. < *The Oölogist*, iv, No. 11, June, 1879, p. 92.

Fringillidæ.

(With *Emberizidæ.*)

1740. Linnæus, C. Doctor Carl Linnæi Beskrifning på Snö-Sparfven. < *Kongl. Svensk. Vetensk.-Akad. Handl.*, i, 1740, pp. 368–374, tab. i, figg. 9–11.

This, which I have not seen, is the original description of the subsequent *Emberiza nivalis* L. (*Plectrophanes nivalis*). (Vol. i, for 1839–40, was pub. 1841.)

1743. Linnæus, C. Beskrifning på Snö-sparfwen. < *Kongl. Swensk. Wetens. Acad. Handl.*, i (1740), 1743, pp. 362–368, pl. i, figg. 9–11.

This is simply the original description of *Emberiza nivalis* in the later edition of the 1st vol. of the *Handlingar.*

1749? Linnæus, C. Beschreibung eines Schneesperlings. < *Abhandl. d. Schwed. Akad.* auf d. Jahr. 1740, 1749? pp. 134–141, taf. i, figg. 9–11.

This, which I have not seen, is the same description of the subsequent *Emberiza nivalis* in the German version (Kästner) of the *Handlingar.*

1749? Sundius, P. B. C. D. | Surinamensia Grilliana | [. . .] | curiosis examinanda sistit | Alumnus Oxenstiernianus | Petrus Sundius Nic. fil. | Stockholmiensis. | In audit. Carol. Maj. d. xviii Junii | Anni MDCCXLIIX [sic] | H. A. M. C. | — | Holmiæ, | Typis Laurentii Salvii. | sm. 4to, 1. p. l., pp. 1–24, 1 pl.

Classis II, Aves, p. 10. Solum de *Emberizæ* specie tractatur, *Passer caeruleofuscus*, Sloane, *Jam.* ii, p. 311.

1750. Linnæus, C. En Indianisk Sparf. Eller Fringilla capite cæruleo, dorso viridi, abdomine fulvo. < *Kongl. Svensk. Vetensk.-Acad. Handl.*, xi, 1750, pp. 278–280, pl. vii. fig. 1.

This is the original description of the subsequent *Emberiza ciris* L. (=*Cyanospiza ciris* Baird), erroneously considered as a bird of India.

1750. Linnæus, C. Beschreibung eines indianischen Sperlings, Fringilla, capite caeruleo, dorso viridi, abdomine fulvo. < *Abhandl. d. Schwed. Akad.* auf d. Jahr 1750, pp. 287, 288.

The same description of the subsequent *Emberiza ciris* L. (*Cyanospiza ciris* Bd.) in the German version of the *Handlingar.*

1757. Schönberg, A. Anmärkningar Om Svånska Papegojan, Loxia [enucleator], linea alarum duplici alba. Faun. Sv. N. 176. < *Kongl. Svensk. Vetensk.-Acad. Handl.*, xviii, 1757, pp. 139–143.

1757. Schönberg, A. Anmerkungen über den schwedischen Papagey (Loxia [enucleator]). < *Abhandl. d. Schwed. Akad.*, auf d. Jahr. 1757, pp. 132–135.

The German version, not seen by me, of the original Swedish.

1773. Anon. Le Pie-grièche noire de la Caroline [Pipilo erythrophthalmus]. < *Journ. Observ. de Phys.*, ii, 1773, pp. 570, 571.

Not seen: the article is anonymous, nor have I been able to discover the author; whoever he may be, he is not "Le Piegriche" whom Giebel invented in his Bibliography, p. 139.

1774. Günther, D. F. C. Vorläufige Nachricht von dem sehr seltenen Nest und den Eyern des Kreuzvogels, oder des Krummschnabels [Loxia curvirostra]. < *Der Naturforscher*, ii, 1774, pp. 66–75.

1778. Otto, —. Abhandlung von den Abarten der Kreutzschnabel [Loxia curvirostra], nebst einigen Anmerkungen über die Anordnung der Thière. < *Der Naturforscher*, xii, 1778, pp. 92–99.

1785–1787. Kuhn, —. Von dem Krünitz oder Krumschnabel (Loxia curvirostra,). < *Der Naturforscher*, xxi, 1785, p. 197; xxii, 1787, p. 142.

1796. Tolman, T. Account of the Crossbill Bird [Loxia curvirostra americana]. < *The Rural Magazine; or, Vermont Repository*, vol. ii, 1796, p. 475.

Seen only in the reprint, by R. Deane, *Bull. Nutt. Club*, iv, No. 2, Apr., 1876, p. 111. The breeding of the species in winter is recorded: "they lay their eggs and hatch their young in the middle of winter."

1797. Osbeck, P. Beskrifning på Knorsnäfven (Loxia curvirostra) och dess lefnadssätt. < *Kongl. Vetensk.-Akad. Nya Handl.*, xviii, 1797, pp. 298–303.

1822. Green, J. Fragments relating to the history of Animals. < *Sillim. Am. Journ. Sci.*, iv, 1822, pp. 309–312.

Under special subhead "Blue-Yellow Bird.—*Fringilla tristis*", the writer gives a curious supposed case of a specimen of *Chrysomitris tristis* which was dark "indigo" in places where the bird is normally yellow; retaining the black pileum and wing-bars.

1825. Bonaparte, C. [L.] Description of a new Species of South American Fringilla [F. xanthoroa]. < *Journ. Acad. Nat. Sci. Phila.*, iv, 1825, pp. 350, 351.

1825. Cooper, W. Description of a new species of Grosbeak [Fringilla vespertina, p. 220], inhabiting the Northwestern Territory of the United States. < *Ann. Lyc. Nat. Hist. New York*, i, pt. ii, 1825, pp. 219–222. (Read Jan. 10, 1825.)

This is the original description of the species, from the Schoolcraft specimen, Saute Ste. Marie, Michigan, Apr., 1823.

1826. Cooper, W. Description of a new Species of Grosbeak [Fringilla vespertina, p. 136], inhabiting the North-western Territory of the United States. < *Thomson's Ann. of Philos.*, new ser., xi, 1826, pp. 134–136.

Reproduced from *Ann. Lyc. Nat. Hist. New York*, i, 1825, pp. 219–222.

1826. Less[on, R. P.] Description d'une espèce nouvelle de Gros-bec [Fringilla vespertina, Coop.], etc., habitant le territoire N.-O. des États-Unis; par William Cooper. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 110.

Extraite des *Annales du Lycée d'Hist. Nat. de New-York*, i, 1825, pp. 219–222.

1826. Less[on, R. P.] Description d'une nouvelle espèce de Fringilla [xanthorea] de l'Amérique méridionale; par Charles Bonaparte. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 249.

Extraite du *Journ. Acad. Phila.*, iv, 1825, pp. 350, 351.

1826. Selby, P. J. Description of the Plectrophanes [Centrophanes] Lapponica; a Species lately discovered in the British Islands. < *Trans. Linn. Soc.*, xv, pt. i, 1826, pp. 156–160, pl. i.

With synonymy, criticism, and notes of habits.

1827. Brehm, [C. L.] Eine neue Art Kreuzschnabel mitten in Deutschland [Crucirostra bifasciata]. < *Ornis*, Heft iii, 1827, pp. 77–93.

1827. Brehm, C. L. Etwas über die Kreuzschnäbel von Brehm. < *Oken's Isis*, Bd. xx, 1827, pp. 704–724.

Crucirostra pityopsittacus, *C. subpityopsittacus*, p. 706; *C. media*, p. 710; *C. pinetorum*, *C. bifasciata*, p. 714; *C. taenioptera*, p. 716; *C. leucoptera*, p. 720.

1827. Gloger, C. [W. L.] Ueber den weisbindigen Kreuzschnabel—Loxia taenioptera—als eigene Art. < *Oken's Isis*, Bd. xx, 1827, pp. 411-418.

1827. Gloger, C. [W. L.] Noch etwas über Loxia taenioptera. < *Oken's Isis*, Bd. xx, 1827, p. 419, 420.

1827. Lesson, R. P. Description d'une espèce nouvelle de gros-bec [Fringilla vespertina, Coop.], habitant la partie nord-ouest des États-Unis; par William Cooper. . . . < *Féruss. Bull.*, 2e sect., xii, 1827, pp. 267, 268.

Tiré des *Annal. de Philos.*, xi, 1826, pp. 134–136.

1828. [Gloger, C. W. L.] Sur le Bec croisé à bandes blanches (Loxia tænioptera), nouvelle espèce: par Constantin Gloger. . . . < *Féruss. Bull.*, 2e sect., xiv, 1828, pp. 116, 117.

Tiré de *l'Isis*, xx, 1827, pp. 411–418.

1828. L[uroth, S. G.] Sur les Becs-Croisés (Loxia); par Brehm. . . . < *Féruss. Bull.*, 2e sect., xiv, 1828, pp. 259, 260.

Tiré de *l'Isis*, xx, 1827, p. 704–724.

1828. [Selby, P. J.] Description du Plectrophanes [Centrophanes] lapponica, Meyer; espèce nouvelle pour la Faune Brittanique, av. fig.; par P. J. Selby esq. < *Féruss. Bull.*, 2e sect., xiii, 1828, p. 243.

Tiré des *Trans. Linn. Soc. Lond.*, xv, pp. 156–160.

1828. Selby, P. J. Beschreibung der Plectrophanes lapponica, kürzlich in Brittanien entdeckt. < *Oken's Isis*, Bd. xxi, 1828, pp. 1163, 1164.

Uebersetzt aus d. *Linn. Trans.*, Bd. xv, T. 1, 1826, pp. 156–160.

1828. S . . . s. [Straus, —.] Nouvelle espèce de Bec croisé d'Allemagne; par le même [*i. e.*, C. L. Brehm]. . . . < *Féruss. Bull.*, 2e sect., xiv, 1828, p. 260.

Crucirostra bifasciata—Ornis, 1827, Heft 3, pp. 77–98.

1829. Anon. The Crossbill [Loxia curvirostra]. < *Loudon's Mag. Nat. Hist.*, i, 1829, p. 394.

1829. Gloger, C. [W. L.] Zur Naturgeschichte des weissbindigen Kreuzschnabels, Loxia tænioptera. < *Nov. Act. Acad. Leop. Carol. Nat. Cur.*, xiv, pt. ii, 1829, pp. 919–942.

Not seen by me: title from Carus and Engelmann.

1829. "J. W." Flocks of Crossbills [Loxia curvirostra] near Worcester. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 268.

1829. Yarrell, W. On the structure of the Beak and its muscles in the Crossbill, (Loxia curvirostra.) < *Zool. Journ.*, iv, 1829, pp. 459–464, pl. xiv, figg. 1–7.

1830. Brehm, C. L. Noch einige Beobachtungen über den zweybindigen Kreuzschnabel, Crucirostra bifasciata. < *Oken's Isis*, Bd. xxiii, 1830, pp. 110–112.

1830. Gloger, C. [W. L.] Sur l'histoire naturelle du Bec croisé à bandes blanches. (Loxia tœnioptera); par Constantin Gloger. . . . < *Féruss. Bull.*, 2e sect., xxii, 1830, pp. 125, 126.

Extrait des *Nov. Act. Acad. Nat. Cur.*, xiv, 1829, pt. ii, pp. 919–924.

1831. K[uhn, —.] Sur les Becs-croisés de Russie. . . . < *Féruss. Bull.*, 2e sect., xxv, 1831, pp. 353, 354.

Tiré du nouv. *Magas. d'Hist. Nat.*, etc., de Moscou, février 1829.

1832. Cooper, W. Neue Gattung Kernbeisser [Fringilla vespertina]. < *Oken's Isis*, Bd. xxv, 1832, p. 1073.

Auszug aus d. *Ann. Lyc. Nat. Hist. New-York*, i, 1825, pp. 219–222.

1832. Green, J. Fragmente zur Naturgeschichte. < *Oken's Isis*, Bd. xxv, 1832, p. 1042.

Aus d. *Amer. Journ. Sci.*, iv, 1822, pp. 309–312, *q. v.*

1833. Clarke, W. B. A Bird's [Plectrophanes nivalis] Nest in the Skull of an Esquimaux. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 154.

Cf. tom. cit., p. 524.

1833. Clarke, W B. A Snow Bunting's [Plectrophanes nivalis] Nest not in the Skull of an Esquimaux. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 524.

Cf. tom. cit., p. 154.

1834. Boie, J. F. Emberiza [*i. e.*, Centrophanes] lapponica Linn. < *Oken's Isis*, Bd. xxvii, 1832, p. 376.

1834. Gervais, [P.] Moineau. Fringilla. Linné. M. de Gay. F. Gayi. Eydoux et Gervais. < *Guér. Mag. de Zool.*, 4e année, 1834, classe ii, notice xxiii, pl. xxiii.

1834. "J. O." The Plectrophanes [Centrophanes] lapponica has been captured, along with Larks, near Preston, Lancashire. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 56, 57.

1835. Gardiner, W. Particulars on a caged Pair of Siskins', or Aberdevines', building Nests and rearing a pair of young Siskins in Confinement; and a Statement of the Fact that the Siskin, wild, has bred about Dundee. < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 372–374.

1835. Gervais, [P.] Moineau. Fringilla. L. Vieill. M. de Cuba. F. Cubæ. Gervais. < *Guér Mag. de Zool.*, 5e année, 1835, classe ii, notice xliv, pl. xliv.

1836. Brown, J. S. The Crossbill (Loxia curvirostra). < *Loudon's Mag. Nat. Hist.*, ix, 1836, p. 202.

1836. Morris, F. O. Facts on the Habits and personal Characteristics of the Crossbill (Loxia curvirostra Temm.). < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 413–416.

1837. Clarke, J. Notes on, and Notices of, the Crossbill (Loxia curvirostra Linn.). < *Charlesw. Mag. Nat. Hist.*, i, 1837, pp. 164–167.

Habits, nidification, and manners in captivity.

1837. Darwin, C. [Remarks upon the Habits of Birds of the Genera Geospiza, Camarhynchus, Cactornis, and Certhidea.] < *P. Z. S.*, v, 1837, p. 49.

1837. Gould, J. [Remarks on a group of Ground Finches from Mr. Darwin's Collection, with characters of the New Species.] < *P. Z. S.*, v, 1837, pp. 4–7.

Geospiza magnirostris, *G. strenua*, *G. fortis*, *G. nebulosa*, *G. fuliginosa*, p. 5; *G. dentirostris*, *G. parvula*, *G. dubia*, *Camarhynchus psittacula*, *C. crassirostris*, p. 6; *Cactornis scandens*, *C. assimilis*, *Certhidea alivacea*, p. 7, genn. et spp. nn.

A very notable paper, first describing the remarkable *Fringillidæ* of the Galapagos. See Darwin's remarks on them, *ibid.* p. 49.

1837. S[elby], P. J. Loxia curvirostra [in Britain]. < *Mag. of Zool. and Bot.*, i, 1837, pp. 103, 104.

1838. Blyth, E. [Remarks on the Plumage and progressive Changes of the Crossbill and Linnet.] < *P. Z. S.*, vi, 1838, p. 115.

1838. Blyth, E. Plumage of the Crossbill [Loxia curvirostra]. < *Charlesw. Mag. Nat. Hist.*, ii, pp. 451, 452.

1839. Brown, J. Breeding of the Crossbill [Loxia curvirostra] in Gloucestershire. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, p. 310.

1839. Charlesworth, E. [Exhibition of the Nest and Eggs of the Crossbill (Loxia curvirostra).] < *P. Z. S.*, vii, 1839, p. 60.

1839. Clarke, J. Young of Loxia curvirostra, Temm. (Crossbill.) < *Charlesw. Mag. Nat. Hist.*, iii, 1839, p. 565.

In Britain.

1839. Long, H. L. Notice of the discovery of the Nests and Eggs of the common Crossbill [Loxia curvirostra], near Farnham, Surrey. With additional Remarks by Mr. Yarrell. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, pp. 236–239.

1839. Long, H. L. Breeding of the Crossbill [Loxia curvirostra] in Surrey. < *Charlesw. Mag. Nat, Hist.*, iii, 1839, p. 311.

1840. Yarrell, W. Exhibition of the Snow-Bunting [Plectrophanes nivalis, in perfect summer plumage, shot in England]. < *P. Z. S.*, viii, 1840, p. 59.

1841. [Lafresnaye, F. de.] G. Passerine. Passerina. Vieillot. S.-G. Spiza. Bonaparte. P. (Spiza) de Leclancher. P. (spiza) Leclancherii. De Lafr. < *Guér. Mag. de Zool.*, 2^e^ sér., année 1841, Oiseaux, pp. 1, 2, pl. 22.

Rev. Zoöl., 1840, p. 260.—En suite de la description specifique, une liste synonymatique de cinq espèces du sousgenre *Spiza*.

1842. Brandt, J. F. Note sur les espèces de Loxia (bec croisé) de la Faune de Russie. < *Bull. Scientif. Acad. Imp. Sci. St.-Pétersb.*, ix, 1842, p. 288.

1. *L. curvirostra*; 2. *L. pityopsittacus*; 3. *L. leucoptera.*

1842. Brandt, J. F. Remarques sur le Passer arctous de Pallas, comme étant vraisemblablement le type de trois différentes espèces d'oiseaux. < *Bull. Scientif. Acad. Imp. Sci. St.-Pétersb.*, x, for Nov. 26, 1841, pub. 1842, pp. 251–253.

Fringilla (*Linaria*) *gebleri*, p. 251 = *P. arctous*, var. *α*. *F.* (*L.*) *brunneonucha*, p. 252 = *P. a.* var. *β*. *F.* (*L.*) *griseonucha*, p. 252 = *P. a.* var. *γ*. Each one of Pallas's three varieties of *Passer arctous* is thus provided with a new name; but as Brandt afterward saw that the word *arctous* itself must stand for one of them, he consequently (*Bulletin* of Feb. 3, 1843, p. 27) transferred his term *gebleri* to an entirely different bird.

1842. Lafresnaye, [F.] de. G. Catamblyrhynque. Catamblyrhynchus. De Lafresnaye. < *Guér. Mag. de Zool.*, 2^e^ sér., année 1843, Oiseaux, pp. 1, 2, pl. 34.

Pl. 34, *C. diadema* Lafr., *R. Z.*, 1842, p. 301, Bogotá.

1842. Sundevall, C. J. Om systematiska fördelningen af Passeres (Fringilla, Loxia och Emberiza L.). < *Förh. Skand. Naturf. o. Läk.*, iii, 1842, pp. 691, 692.

Not seen.

1843. GREGORY, — DE. [Note relative aux essais pour acclimater Cardinalis virginianus en France.] < *Revue Zoologique*, vi, 1843, p. 127.

1843. HASLAM, S. H. Note on the occurrence of the Lark Bunting [Centrophanes lapponica] near Milnthorpe. < *Zoologist*, i, 1843, p. 316.

1843. HEPPENSTALL, J. Note on the Lesser Redpoll [Ægiothus linaria]. < *Zoologist*, i, 1843, p. 353.

1843. JORDAN, W. R. H. Note on the Crossbill, (Loxia curvirostra) [in Devon]. < *Zoologist*, i, 1843, p. 39.

1843. JERDON, A. Note on the occurrence of the White-winged Crossbill [Loxia leucoptera] in Scotland. < *Zoologist*, i, 1843, pp. 221, 222.

1843. LAFRESNAYE, [F.] DE. G. Gros-bec. Coccothraustes. Cuv. (G. Guiraca. Swainson. S.-G. Piezorina. De Laf.) G. cendré. C. cinerea. De Lafr. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 30.

A peculiar form of the *Fringillidæ* from the Galapagos Islands.

1843. LEWCOCK, J. Notes on the Crossbill's [Loxia curvirostra] breeding in the Holt Forest [Hampshire]. < *Zoologist*, i, 1843, p. 189.

1843. WILLOUGHBY, S. Note on the Snow Bunting [Plectrophanes nivalis]. < *Zoologist*, i, 1843, p. 352.

1844. BELL, R. J. Note on the occurrence of the Snow Bunting [Plectrophanes nivalis] at Derby. < *Zoologist*, ii, 1844, p. 569.

1844. BONAPARTE, C. L. Genus novum Fringillinarum [Bustamantia (capitaurea sp. n.)]. < *Nuov. Ann. Scienze Nat. Bologna*, 2d ser., i, May, 1844, pp. 397–399.

The genus and species, described as new from Bogotá, are synonymous with *Catamblyrhynchus diadema* Lafr., *R. Z.*, 1842, p. 301.

1844. BRANDT, J. F. Ueber die Gattungen von Loxia in Russland. < *Oken's Isis*, Bd. xxxvii, 1844, p. 134.

From *Bull. Sci. Acad. Imp. Sci. St.-Pétersb.*, Bd. ix, 1841, p. 288.

1844. BRANDT, J. F. Bemerkungen über Passer arctous Pallas, welcher wahrscheinlich der Typus von 3 verschiedenen Gattungen ist. < *Oken's Isis*, Bd. xxxvii, 1844, pp. 135–137.

Bull. Sci. Acad. Imp. Sci. St.-Pétersb., Bd. x, auf d. J. 1841, 1842, pp. 251–253, *q. v. Fringilla (Linaria) gebleri, F. (L.) brunneonucha, F. (L.) griseonucha.*

1844. WARD, J. F. Ueber das Vorkommen von Pyrrhula enucleator bey Newyork. < *Oken's Isis*, Bd. xxxvii, 1844, p. 118.

* *Ann. Lyc. Nat. Hist. N. Y.*, iv, p. 51.—Vergl. 1848, WARD, J. F.

1845. BORRER, W., JR. Occurrence of the Lapland Bunting (Plectrophanes [Centrophanes] Lapponica), near Brighton, Sussex. < *Zoologist*, iii, 1845, p. 825.

1845. CLARK, H. Occurrence of the Pine Grosbeak [Pinicola enucleator] near Rochdale. < *Zoologist*, iii, 1845, p. 1025.

1845. FITTON, E. [B.] [Note on the White-winged Crossbill (Loxia leucoptera).] < *P. Z. S.*, xiii, 1845, p. 91.

1845. FITTON, E. B. Occurrence of the White-winged Crossbill [Loxia leucoptera] at Exmouth. < *Zoologist*, iii, 1845, p. 1190.

1845. FRERE, H. T. Occurrence of the Snow Bunting [Plectrophanes nivalis] near Aylsham. < *Zoologist*, iii, 1845, p. 1191.

1845. SUNDEVALL, [C. J.] Korsnäbbens [Loxia curvirostra] fortplantning. < *Öfvers. Kongl. Svensk. Vetensk.-Akad. Förhandl. för år* 1845, pp. 131, 132.

1846. BELL, R. J. Occurrence of the White-winged Crossbill [Loxia leucoptera] at Derby, Nov. 21st, 1845. < *Zoologist*, iv, 1846, pp. 1247, 1248.

1846. CHARLESWORTH, [E.] [Nest vom Kreuzschnabel, vom Gipfel einer Fichte.] < *Oken's Isis*, Bd. xxxix, 1846, p. 618.

P. Z. S., vii, Mar., 1839, p. 60.

1846. Cooper, J. Occurrence of the White-winged Crossbill [Loxia leucoptera] near Carlisle. < *Zoologist*, iv, 1846, p. 1551.

1846. Garth, J. Occurrence of the Crossbill [Loxia curvirostra] at Knaresborough. < *Zoologist*, iv, 1846, p. 1367.

1846. Hunter, C. B. Nesting of the Lesser Redpoll [Ægiothus linaria] in Norfolk. < *Zoologist*, iv, 1846, p. 1497.

1846. Hunter, C. B. Occurrence of the White-winged Crossbill [Loxia curvirostra] near Thetford. < *Zoologist*, iv, 1846, p. 1498.

1846. Newton, A. On Redpolls [Ægiothus linaria] staying at Thetford throughout the summer. < *Zoologist*, iv, 1846, pp. 1497, 1498.

1846. Selys-Longchamps, E. de. Notice sur les Becs-croisés leucoptère et bifascié. < *Bull. Acad. Belgique*, xiii, i, 1846, pp. 324–336; *l'Institut*, xiv, No. 660, 1846, pp. 290, 291.

Pas vue moi-même.

1846. Sundevall, [C. J.] Loxia bifasciata Br. < *Öfvers. Kongl. Svensk. Vetensk.-Akad. Förhandl. för år* 1846, pp. 37–40.

"Efter några underrättelser om Bändel korsnäbbens förekomst, lemnar förf. en öfversigt af de hittills kända 5 arterna af sl. *Loxia*."—v. Friesen, *Öfv. Sver. Orn. Litt.*, 1860, 34.

Hittills känner man följande arter af slagtet *Loxia: L. pityopsittacus, L. curvirostra, L. fusca* V. [=*L. americana* Wils.], *L. bifasciata, L. leucoptera.*

1847. Hodgkinson, J. B. Occurrence of the White-winged Crossbill [Loxia curvirostra] in Cumberland. < *Zoologist*, v, 1847, p. 1638.

1848. Johnson, F. W. Extreme abundance of the Mealy Redpoll (Fringilla [Ægiothus] canescens) near Ipswich. < *Zoologist*, vi, 1848, p. 2064.

1848. Newman, E. Proposed alteration of Name in the Europæan White-winged Crossbill, and Occurrence of the American White-winged Crossbill [Loxia leucoptera] in England. < *Zoologist*, vi, 1848, p. 2300.

1848. Newton, A. Note on the Mealy Redpoll (Fringilla [Ægiothus] canescens), &c. < *Zoologist*, vi, 1848, pp. 2144, 2145.

1848 (*prior to*). Ward, J. F. Notice of the Appearance of the Pine Grosbeak, Pyrrhula Enucleator, in the Environs of New-York [in winter of 1836–7]. < *Ann. Lyc. Nat. Hist. New York*, iv, 1848, pp. 51, 52. (Read Dec. 19, 1836. Whole vol. dated 1848.)

This article must have appeared in 1844 or earlier, as it is noticed in the *Isis* of that year. The date given is that of the completed vol. of the *Annals*.

1849. Bree, C. R. Occurrence of the Two-barred Crossbill (Loxia bifasciata) in Suffolk. < *Zoologist*, vii, 1849, p. 2419.

1849. Cater, W. E. Arrival of the Snow Bunting (Emberiza [Plectrophanes] nivalis) [in Britain]. < *Zoologist*, vii, 1849, p. 2415.

1849. Duff, J. The Crossbill (Loxia curvirostra) nesting in Durham. < *Zoologist*, vii, 1849, pp. 2526, 2527.

1849. Ellman, J. B. Occurrence of the Hawfinch (Loxia coccothraustes) and Crossbill (L. curvirostra) at Rye. < *Zoologist*, vii, 1849, p. 2418.

1849. Hulke, J. W. Occurrence of the Snow Bunting (Emberiza [Plectrophanes] nivalis) near Deal. < *Zoologist*, vii, 1849, p. 2388.

1849. [Jardine, W.] Phrygilus unicolor, Tschudi. < *Jard. Contrib. Orn.*, 1849, p. 46, pl. xx.

1849. Marris, R. Occurrence of the Crossbill [Loxia curvirostra] at Wisbeach. < *Zoologist*, vii, 1849, p. 2527.

1849. [Thienemann, F. A. L.] Der weissbindige Kreuzschnabel. < *Rhea*, Heft. ii, 1849, pp. 165–171.

Behandelt *Loxia pityopsittacus, curvirostra,* und *leucoptera,* mit kurzer Beschreibung und Aussmessungen einiger Exemplare der drei Formen.

1850. Amhurst, F. K. Enquiry respecting a [British] Bird's Nest [Ægiothus linaria? see Zool., 3027]. < *Zoologist*, viii, 1850, p. 2967.

1850. Bonaparte, C. L., *and* Schlegel, H. Monographie | des | Loxiens | par | Ch. L. Bonaparte | et | H. Schlegel. | — | Ouvrage | accompagné de 54 planches coloriées, | lithographiées | d'après les dessins | de | M. Bädeker | et autres naturalistes | — | Leiden et Düsseldorf, | chez | Arnz & Comp. | 1850. 1 vol. 4to. 3 p. ll (title, dedication), pp. i–xviii, 1–55, pll. color. 54.

Descriptive and general account of 41 spp., introduced by a commentary on the inter-relations of *Fringillidæ*. The "Loxiens" are divided into 3 groups, *Loxiaceæ*, *Montifringillaceæ*, and *Linotaceæ*.—*Oriturus*, *Melanodera*, p. ii; *Lophospiza*, *Phonipara*, p. iii; *Pyrrholoxia*, *Cyanoloxia*, p. vi; *Chaunoproctus*, p. xiv, appear to be new generic names of Bonaparte's. Pl. 1, *Loxia pityopsittacus*; 2, 3, 4, 5, *L. curvirostra* et vars.; 6, *L. americana*; 7, *L. himalayana*; 8, *L. bifasciata*; 9, 10, *L. leucoptera*; 11, 12, *Corythus enucleator*; 13, *C. subhimachalus*; 14, *Carpodacus erythrinus*; 15, *C. purpureus*; 16, 17, *C. frontalis*; 18, *C. sinaiticus*; 19, 20, *C. roseus*; 21, *C. rhodochrous*; 22, *C. rhodopeplus*; 23, *C. thura*, p. 21, n. sp.; 24, *C. sophia*, p, 22, n. sp.; 25, *C. rhodochlamys*; 26, *C. rubicilla*; 27, 28, *C. puniceus*; 29, *Pyrrha saturata*; 30, 31, *Erythrospiza phœnicoptera*; 32, *E. obsoleta*; 33, *E. githaginea*; 34, 35, *Uragus sibiricus*; 36, *U. sanguinolentus*; 37, 38, *Chaunoproctus papa*; 39, 40, *Hœmatospisa sipahi*; 41, *Montifringilla griseinucha*; 42, *M. brunneinucha*; 43, *M. tephrocotis*; 44, 45, *M. arctoa*; 46, *M. nivalis*; 47, *Fringalauda nemoricola*; 48, *Linota cannabina*; 49. *L. fringillirostris*, n. sp., p. 45; 50, *L. montium*; 51, *Acanthis canescens*; 52, *A. linaria*; 53, *A. hollbölli*; 54, *A. rufescens*.

The introductory matter of this work is unmistakably "Napoleonic"; the text is apparently from the hand of the more conservative and trustworthy author.—There is a reprint of the "Introduction" in *Jard. Contr. Orn.*, 1851, pp. 27–47—though one issue of this matter might have been considered amply sufficient.

1850. [Kirtland, J. P.] Birds of Winter. < *The Family Visitor*, i, No. 8, 1850, p. —.

Noting occurrence of certain *Fringillidæ* in Ohio at that season.

1850. [Kirtland, J. P.] Pine Linnet—Linaria pinus. < *The Family Visitor*, i, No. 18, 1850, p. 140. See also No. 19, p. 148, and No. 21, p. 164.

Biographical sketch of the species as observed in Ohio.

1850. [Kirtland, J. P.] White-headed Sparrow [Zonotrichia leucophrys]. < *The Family Visitor*, i, No. 19, 1850, p. 148. See also No. 21, p. 164.

1850. Lanfossi, P. Sovra l' albinismo e melanismo di una Loxia curvirostra e di una Fringilla cisalpina, e sull' Emberiza rustica Pall. < *Giorn. dell' Ital. R. Istit. Lombardo*, ii, 1850, pp. 111–113.

Non veduto per me.

1850. Newman, E. Occurrence of the Parrot Crossbill (Loxia pityopsittacus) near London. < *Zoologist*, viii, 1850, p. 2770.

1851. Brewer, T. M. [On the occurrence of the Pine Grosbeak (Strobilophaga enucleator) and other Fringillidæ, in the neighbourhood of East Bethel, Vt.] < *Proc. Boston Soc. Nat. Hist.*, iv, 1851, pp. 42, 43.

1851. Hewitson, W. C. Remarkable Bird's [Ægiothus linaria?] Nest. < *Zoologist*, ix, 1851, p. 3027.

Cf. *Zool.*, 2967.

1851. [Jardine, W.] Monographie des Loxiens. < *Jard. Contrib. Orn.*, 1851, pp. 27–47.

Note introducing a reprint of the introduction of this work.

1851. Lanfossi, P. Sopra varie Fringille appartenenti al sottogenere Linaria de Brehm. < *Giorn. dell' Ital. R. Istit. Lombardo*, new ser., iii, 1851, pp. 95–109.

Non veduto per me.

1851. Newton, A. Occurrence of the Parrot Crossbill [Loxia pityopsittacus] in Suffolk and Norfolk. < *Zoologist*, ix, 1851, p. 3145.

1852. Bell, J. On the Pipilo Oregonus [n. sp.] as distinguished from the Pipilo Arcticus of Swainson. < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 6–8. (Read Nov. 27, 1848.)

1852. Bree, C. R. Note on the Common Red-poll (Linota [Ægiothus] linaria). < *Zoologist*, x, 1852, pp. 3511, 3512.

1852. Ellman, J. B. Note on the Snow Bunting (Emberiza [Plectrophanes] nivalis). < *Zoologist*, x, 1852, p. 3329.

1852. McCall, G. A. Note on Carpodacus frontalis, (Say,) with description of a new species [C. familiaris] of the same genus, from Santa Fé, New Mexico. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, p. 61.

1852. Verreaux, J. Description d'une nouvelle espèce d'oiseau du genre Callirhynchus [devronis]. < *Rev. et Mag. de Zoöl.*, iv, 1852, pp. 314–316.

Described from Guayaquil.

1852. Lawrence, G. N. Descriptions of new species of Birds of the genera . . . Embernagra [rufivirgata], . . . < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 112–117, pl. 5. (Read Apr. 28, 1851.)

Here occurs, in a paper of wider scope, full title of which is the N. Amer. part of this *Bibl.*, the orig. descr. of the above sp., p. 112, pl. 5, f. 2.

1852. Lawrence, G. N. Descriptions of New Species of Birds, of the genera . . . Plectrophanes [McCownii, p. 122] Meyer. < *Ann. Lyc. Nat. Hist. N. Y.*, v, 1852, pp. 121–123. (Read Sept. 8, 1851.)

Other spp. here described are a *Toxostoma* and a *Tyrannula:* title is to be found in full in the N. Am. part of this *Bibl.*

1852. Woodhouse, S. W. Descriptions of new species of Birds of the genera Vireo, Vieill., and Zonotrichia [cassinii, p. 60], Swains. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, pp. 60, 61.

This is the *Peucœa cassini* of later authors.

1852. Woodhouse, S. W. Description of a new Snow Finch of the genus Struthus [caniceps], Boie. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, pp. 202, 203.

1853. Brehm, [C.] L. Die Kreuzschnäbel. Crucirostra, Cuv. < *Naumannia*, iii, 1853, pp. 178–203, 241–256; pl. —, figg. 1–20.

I. *Loxia pityopsittacus:* 1, *C. major*, f. 1; 2, *C. pityopsittacus*, f. 2; 3, *C. subpityopsittacus*, f. 3; 4, *C. brachyrhynchos*, f. 4; 5, *C. pseudopityopsittacus*, f. 5; 6, *C. intercedens*, f. 6. II. *Loxia curvirostra:* 1, *C. montana*, f. 9; 2, *C. paradoxa*, f. 7; 3, *C. media*, f. 8; 4, *C. macrorhynchos*, f. "8"; 5, *C. pinetorum*, f. 11. III. *Crucirostra minuta: C. minor*, f. 12. IV. *Crucirostra rubrifasciata;* 1, *C. rubrifasciata*, f. 13; 2, *C. erythroptera*, f. 14. V. *Crucirostræ albifasciatæ:* 1, *C. trifasciata*, f. 15; 2, *C. bifasciata*, f. 16; *C. tænioptera*, f. 17; 4, *C. orientalis*, f. 18; 5, *C. assimilis*, f. 19; 6, *C. leucoptera*, f. 20.

In this paper Brehm is very thoroughly himself, carrying out his peculiar views to their logical extreme. All these "species," real or Brehmian, some of which are here described as new, are very elaborately treated; and the plate, from nature by J. F. Naumann, is valuable as showing how complete is the graduation in size of bill from the largest to the smallest. Among the twenty "species" here treated, some five or six might be held worthy of recognition by many ornithologists.

1853. Böck, —. Ausfallen der Mauser bei einem Vogel [Centrophanes lapponica] in der Gefangenschaft. < *J. f. O.*, i, 1853, pp. 207.

Cf. tom. cit., p. 383.

1854. Cassin, J. [Remarks on abundance of Loxia leucoptera in the vicinity of Philadelphia, winter of 1853–4.] < *Proc. Acad. Nat. Sci. Phila.*, vii, 1854, pp. 203, 204.

1854. Lanfossi, P. Sopra varie fringille appartenenti al sottogenere Linaria di Brehm. < *Bianconi's Repert. Ital. Stor. Nat.*, ii, 1854, pp. 24–27.

Estratto *Giorn. delle' I. R. Istit. Lombardo di Scienze*, ec., t. iii, pp. 95–109, Milano, 1851.

1854. Lanfossi, P. Sovra l'albinismo e melanismi d'una varietà della Loxia curvirostra etc. < *Bianconi's Repert. Ital. Stor. Nat.*, ii, 1854, pp. 9, 10.

Giorn. I. R. Istit. Lombardo di Scienze, ec., t. ii, Milano, 1850, p. 111.

1854. Roberts, A. Occurrence of the Crossbill [Loxia curvirostra] near Scarborough. < *Zoologist*, xii, 1854, pp. 4329, 4330.

1855. Bold, T. J. Occurrence of Crossbills [Loxia curvirostra] in Northumberland and Durham. < *Zoologist*, xiii, 1855, p. 4871.

1855. Bolle, C. Der Hakengimpel, Pyrrhula Enucleator, Temm. in Amerika. <*Naumannia*, 1855, pp. 424–427.

Aus dem Englischen von Audubon.

1855. Bonaparte, C. L. [Remarques sur un opuscule de M. le vicomte Dubus de Ghisignies, sur douze espèces inédites de Passereaux chanteurs.] <*Compt. Rend. de l'Acad. Sci.*, xl, 1855, pp. 356, 454, 455.

Note: Kieneria, g. n., p. 356, type "ex-*Pipilo rufipilea.*"

1855. Cottle, T. Coccothraustes vespertina.—Evening Grosbeak. <*Canad. Journ.*, iii, 1855, p. 287.

Historical and descriptive—occurrence of the species in Canada.

1855. Dehne, A. Loxia leucoptera Gmel. und Loxia bifasciata Brehm. <*Allg. deutsche naturh. Zeitung*, n. F., i, 1855, p. 439.

Nebst Nachschrift von Reichenbach, p. 440.—Nicht mir selbst zugänglich.

1855. Gloger, C. W. L. Die Liebe zu glänzenden Gegenständen, [u. s. w.]. <*J. f. O.*, iii, 1855, pp. 76–79.

As instanced by Audubon in the case of *Guiraca cœrulea*, etc.

1855. Norman, G. Occurrence of large Flocks of Crossbills [Loxia curvirostra] near Hull. <*Zoologist*, xiii, 1855, p. 4808.

1855. Stevenson, H. The Lapland Bunting (Plectrophanes [Centrophanes] lapponica,) in Norfolk. <*Zoologist*, xiii, 1855, p. 4631.

1856. Bold, T. J. Crossbill [Loxia curvirostra] breeding in the North of England. <*Zoologist*, xiv, 1856, pp. 5159, 5160.

1856. Brehm, C. L. Etwas über die Leinzeisige, Linaria, Briss. <*Naumannia*, vi, 1856, pp. 173–177.

1) Von rothbrüstigen, *L. longirostris*, *tenuirostris*, *holböllii*, *alnorum*, *agrorum*, *betularum et microrhynchus*. 2) Von weissbrüstigen, *L. borealis*, *robusta*, *rufescens*, *dubia*, *canigularis*, *assimilis*, *leuconotus*, *septentrionalis*, *flavirostris*, *pusilla*.

1856. Smith, J. A. [Note on Ægiothus canescens in the vicinity of Edinburgh.] <*Edinb. New Philos. Journ.*, new ser., iii, 1856, p. 350.

1857. [Billings, E.] On the Natural History of the Rosignol or Song Sparrow, Fringilla [Melospiza] melodia. <*Canad. Nat. and Geol.*, ii, 1857, pp. 47–52.

With chars. and synon., copied from Audubon, of 4 spp. of Canadian *Fringillidæ*.

1857. Bonaparte, C. L. Observations sur diverses espèces d'Emberiziens et répartition en genres de cette Sous-famille de Passereaux chanteurs conirostres. <*Rev. et Mag. de Zool.*, ix, 1857, pp. 160–166, pl. 7.

La sous-famille se trouve limitée aux genres *Cynchramus*, *Plectrophanes*, *Centrophanes*, *Onychospina*, *Hypocenter*, *Fringillaria*, *Hortulanus*, *Schœnicla*, *Emberiza*, *Buscarla* (type *E. pusilla* Pall.). L'objet principal de ce mémoire est d'illustrer la figure d'un jeune mâle de *Buscarla pityornis* (pl. 7—"*Emberiza scotata*" par une erreur de gravure—voir "errata," p. 209.)

1857. D'Urban, W. S. M. Notice of the Occurrence of the Pine Grosbeak [Pinicola enucleator] and Bohemian Chatterer, near Montreal. <*Canad. Nat.*, i, Jan., 1857, pp. 465–472, woodc.

1857. Lanfossi, P. Intorno ai Crocieri a doppia fascia [Loxia bifasciata]. <*Giorn. dell' Ital. R. Istit. Lombardo*, new ser., ix, 1857, pp. 117–127.

Non veduto per me.

1858. Baird, S. F. [Ammodromus samuelis, a new Sparrow from California.] <*Proc. Boston Soc. Nat. Hist.*, vi, 1858, pp. 379, 380.

1858. Cassin, J. [Occurrence of Hesperiphona vespertina in Northern Illinois.] <*Proc. Acad. Nat. Sci. Phila.*, 1858, p. 191.

1858. Doubleday, H. Plectrophanes nivalis [habits of]. <*Zoologist*, xvi, 1858, pp. 6093, 6094.

1858. Hadfield, H. W. Emberiza [Plectrophanes] nivalis [habits of]. <*Zoologist*, xvi, 1858, pp. 6239, 6240.

1858. MATTHEWS, M. A. [Note on habits of] Emberiza [Plectrophanes] nivalis. < *Zoologist*, xvi, 1858, pp. 6207, 6208.

1858. SMURTHWAITE, H. Occurrence of Crossbills [Loxia curvirostra] in Yorkshire. < *Zoologist*, xvi, 1858, p. 6309.

1859. ANON. Occurrence of the Parrot Crossbill (Loxia pityopsittacus) near Brighton. < *Zoologist*, xvii, 1859, p. 6329.

1859. BLAKISTON, T. Scraps from the Far West. < *Zoologist*, xvii, 1859, pp. 6318–6325, 6373–6376.

Remarks on birds observed in British America between York Factory and Carleton House, and as such only properly citable in another connection; noted here for the detailed account of *Hesperiphona vespertina* which the paper includes.

1859. BREWER, T. M. [Note on the occurrence of Coturniculus henslowi in Massachusetts.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1859, pp. 74, 75.

Corrects his erroneous statement, *tom. cit.*, p. 21, that *Peucæa æstivalis* had been found in Massachusetts.

1859. GOULD, J. [Exhibition of Crithagra brasiliensis shot in England (probably escaped).] < *P. Z. S.*, xxvii, 1859, p. 100.

1859. GRAYSON, A. J. The Crimson-necked or House Finch [Carpodacus frontalis]. < *The Hesperian* (San Francisco, Cal.), ii, Mar., 1859, pp. 7 – —, with pl. of ♂ and ♀.

Not seen.

1859. ROGERS, H. Occurrence of the Snow Bunting (Emberiza [Plectrophanes] nivalis) in the Isle of Wight. < *Zoologist*, xvii, 1859, p. 6780.

1859. WHEELER, E. S. [Remarks on exhibition of male and female specimens of Ammodromus henslowi, with nest and eggs.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1859, p. 137.

1860. GLOGER, C. W. L. Die Heimath des weissbindigen Kreuzschnabels in Europa. < *J. f. O.*, viii, 1860, pp. 397, 398.

"*Loxia leucoptera ! taenioptera, bifasciata.*"

1860. KIRTLAND, J. P. [Occurrence of Hesperiphona vespertina in Ohio.] < *Ohio Farmer*, March 24, 1860, vol. ix, p. —.

The original ascription of the species to Ohio; but it had been got in that State in 1847.

1860. SCHNERR, J. Die Kreuzschnäbel [Loxia curvirostra]. Legende. < *J. f. O.*, viii, 1860, pp. 471, 472.

Gedicht.

1860. PHILIPPI, R. A. Ueber zwei vermuthlich neue Chilenischen Enten und über Fringilla barbata Mol. < *Archf. f. Naturg.*, 1860, (1), pp. 24–28.

Anas iopareia, p. 24. *Erismatura vittata*, p. 26. Synonymik von *Chrysomitris barbata*.

1861. BOLLE, C. Ueber den californischen Hausfinken, Carpodacus familiaris McCall. < *J. f. O.*, ix, 1861, pp. 141–147.

Ins Deutsche übertragen von Dr. C. Bolle aus *Cass. Ill. B. Cal. Texas*, Heft 3, 1853, fig. xiii.

1861. COUES, E. A Monograph of the Genus Ægiothus, with descriptions of new Species. < *Proc. Acad. Nat. Sci.*, xiii, 1861, pp. 373–390.

This is an attempt, not entirely successful, to fix the species of this difficult genus, with synonymy, description, and criticism. The author recognizes seven species: *Æ. rostratus* (sp. n., p. 378, Greenland), *canescens*, *exilipes* (sp. n., p. 385, Arctic America), *linaria*, *fuscescens* (Coues, described as sp. n., in *op. tom. cit.*, p. 222, Labrador), *rufescens*, and *holbölli*. The last two are given as doubtfully distinct from *linaria*. (*Æ. fuscescens* has since been shown to be the dark midsummer plumage of *linaria*, and *rostratus* to bear the same relation to the large Greenland form. *Æ. exilipes* has been usually accepted as a good species, and of late accredited also to boreal continental parts of the old world.) Cf. *Ibis*, 1862, p. 187.

1861. GLOGER, C. W. L. Richtige Ansicht eines nordischen Zoologen [Liljeborg] über die Färbung der mannlichen Kreuzschnäbel [Loxia curvirostra]. < *J. f. O.*, ix, 1861, p. 78.

1861. Sclater, P. L. On a New Species of Finch, of the Genus Sycalis [chrysops], from Mexico. < *P. Z. S.*, xxix, 1861, pp. 376, 377.

1861. W[heaton], J. M. Bird Talk. < *Field Notes*, vol. i, No. 20, May 18, 1861, p. 153.
Occurrence of various birds, especially *Chondestes grammica*, in Ohio.

1862. Bree, C. R. Occurrence of the Parrot Crossbill [Loxia pityopsittacus] near Colchester. < *Zoologist*, xx, 1862, pp. 8032, 8033.

1862. Cabanis, J. Zur Synonymie einiger Pipilo-Arten. < *J. f. O.*, x, 1862, pp. 473, 474.
Pipilo crissalis, *fuscus*, *rutilus*, *maculatus*.

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Cf. *tom. cit.*, pp. 12, 350, 476.

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L. gigliolii, p. 579, pl. xliv, with list of 7 spp. of the genus.

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The full paper comes under the Neotropical (Faunal) department of this Bibliography. It is cited here also, because it relates so largely to the *Fringillidæ*. With *Peucæa notosticta*, sp. n., p. 322, S. Mexico, is given a synopsis of 5 spp. of *Peucæa.—Zonotrichia quinquestriata*, p. 323, sp. n., Mexico.—With *Pyrgisoma cabanisi*, sp. renom., p. 324, and *P. kieneri* Bp., is given a synopsis of 5 spp. of that genus.

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From the 'Lynn Advertiser,' Oct. 15, 1870.

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Fruitless incubation for 3 weeks of an egg of *Numida meleagris* by *Cardinalis virginianus*, and variation in number of eggs of the latter bird.

1870. Newton, A. [Exhibition of a skin of the North-American Zonotrichia albicollis shot in Scotland.] < *P. Z. S.*, xxxviii, 1870, p. 52.

This is the case previously reported by W. C. Angus, *Zoologist*, 2d ser., iv, 1869, pp. 1547–1549. Another case of the same occurrence is subsequently noticed, with a colored figure, by G. D. Rowley, in *Rowl. Orn. Misc.*, ii, pt. v, 1876, pp. 75, 76, pl. xlvi, f. 3.

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1870. RICKARDS, M. S. C. Snow Bunting [Plectrophanes nivalis] on the Severn Bank. < *Zoologist*, 2d ser., v, 1870, p. 2140.

1870. WALLIS, H. M. Snow Bunting [Plectrophanes nivalis] at Aldeburgh. < *Zoologist*, 2d ser., v, 1870, p. 1981.

1871. CABANIS, J. [Notiz über die Gattung Pyrrhula und die in Sibirien vorkommenden Arten.] < *J. f. O.*, xix, 1871, pp. 316–319.

Diagnostic synopsis of 9 spp. Cf. *Ibis*, 1871, p. 232; *J. f. O.*, p. 315.

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At Halifax, Nova Scotia, Jan. 31, 1871.

1871. SCLATER, P. L. A Revision of the Species of the Fringilline Genus Spermophila. < *Ibis*, 3d ser., i, 1871, pp. 1–23, pll. i, ii.

Very complete; analysis, synonymy, diagnosis, habitat of 24 spp. known to the author, with critical commentary; 11 other spp. similarly treated; remarks on geographical distribution of the genus. Pl. i, f. 1, 2, *S. nigrorufa*, ♂, ♀; fig. 3, *S. pileata*. Pl. ii, f. 1, 2, *S. aurita*; f. 3, *S. ocellata*.

1872. BOYES, F. [On the usual resorts of the] Lesser Redpoll. < *Zoologist*, 2d ser., vii, 1872, p. 3313.

1872. CABANIS, J. [Ueber Pyrrhula cassini und P. cineracea n. sp. aus Sibirien.] < *J. f. O.*, xx, 1872, pp. 315, 316.

1872. HÜGEL, A. V. Redpole Breeding in Lancashire. < *Zoologist*, 2d ser., vii, 1872, pp. 3147, 3148.

1872. LEACH, H. R. Snow Bunting [Plectrophanes nivalis, Sept. 20, 1872, between Hunstanton and Thornham]. < *Zoologist*, 2d ser., vii, 1872, p. 3313.

1872. MAYNARD, C. J. A New Species of Passerculus [princeps] from Eastern Massachusetts. < *Am. Nat.*, vi, 1872, pp. 637, 638.

P. princeps, n. sp., the same formerly supposed to be *Centronyx bairdii* (*cf. op. cit.*, iii, 513, 554, 631; vi, 307). With a note on *Thalasseus havelli*=*Sterna forsteri*.

1872. NICHOLSON, F. Lesser Redpoll and Twite. < *Zoologist*, 2d ser., vii, 1872, p. 3235.

1872. PORRITT, G. T. Redpoll breeding at Huddersfield. < *Zoologist*, 2d ser., vii, 1872, p. 3235.

1872. RIDGWAY, R. On the Occurrence of a Near Relative of Ægiothus flavirostris [var. brewsteri, n. v.] at Waltham, Mass. < *Am. Nat.*, vi, 1872, pp. 433, 434.

1872. ROWLEY, G. D. [Remarks on exhibition of a specimen of Zonotrichia albicollis, taken near Brighton.] < *P. Z. S.*, June 4, 1872, p. 681.

For a previous occurrence of this species in Great Britain, cf. *P. Z. S.*, 1870, p. 52. For further notice of the present case, cf. *Rowl. Orn. Misc.*, ii, pt. v, 1876, p. 75, pl. xlvi, f. 3.

1872. SCLATER, P. L. A Revision of the Species of the Fringilline Genus Sycalis. < *Ibis*, 3d ser., ii, 1872, pp. 39–48, pll. ii, iii.

Of the 20 species assigned to the genus in Gray's 'Hand-list,' the author has not seen 2; the remaining 18 are merged in 10, the diagnostic characters, synonymy, and distribution of which are given. One receives a new name (*Sycalis pelzelni*, p. 42). Pl. ii, f. 1, *S. chrysops*; f. 2, *S. lutea*. Pl. iii, *S. aureiventris*, ♂, ♀.

1873. "AIKEN, C. E." [*i. e.*, RIDGWAY, R.—cf. Bull. Essex Inst., v, 1873, p. 190.] A New Species of Sparrow [Centronyx ochrocephalus, Aiken]. < *Am. Nat.*, vii, 1873, pp. 236, 237.

Afterward determined to be *C. bairdi*.

1873. B[AIRD], S. F. Note on Cassin's Pyrrhula [P. cassini, Bd.]. < *Am. Nat.*, vii, 1873, p. 239.

With reference to Cabanis's recent remarks: cf. *J. f. O.*, 1871, p. 318; 1872, p. 315; 1873, p. 314.

1873. Brewer, T. M. [Exhibition of a pair of Plectrophanes maccowni from "California," *i. e.*, Colorado.] < *Proc. Boston. Soc. Nat. Hist.*, xv, 1873, p. 311.

1873. Cabanis, J. [Berichtigungen über Pyrrhula cineracea und P. cassini.] < *J. f. O.*, 1873, pp. 314, 315.

Cf. *J. f. O.*, 1871, p. 318; 1872, p. 315.

1873. Coues, E. Notice of a Rare Bird [Coturniculus lecontii]. < *Am. Nat.*, vii, 1873, pp. 748, 749.

Rediscovery of the species, in Dakota; amended description of adult and young; notice of habits.

1873. Edwards, W. H. Snowbird [Junco hyemalis, breeding on Graylock Mountain]. < *Am. Nat.*, vii, 1873, p. 745.

1873. Fischer, J. v. Fortschreitender Albinismus. < *Zool. Gart.*, xiv, 1873, pp. 115, 116.

Cannabina linota, Plectrophanes nivalis.

1873. Mapes, H. H. The Rose-breasted Grosbeak (Guiraca ludoviciana). < *Am. Nat.*, vii, 1873, p. 493.

A field-note on the destruction of *Doryphora* 10-*lineata* by this species.

1873. Schacht, H. Cardinal (Cardinalis virginianus) und Kirschkernbeisser (Lox. coccothraustes). < *Zool. Gart.*, xiv, 1873, p. 355.

1873. Scott, D. [W.] Centronyx "ochrocephalus," Aiken. < *Am. Nat.*, vii, 1873, pp. 564, 565.

Validity of this species denied.—*Harporhynchus bendirii* considered probably the same as *H. curvirostris* var. *palmeri*.

1873. Tenney, S. The Black Snowbird [Junco hyemalis] breeds in the Graylock Range. < *Am. Nat.*, vii, 1873, p. 634.

1873. Trippe, T. M. The Painted Bunting [Plectrophanes pictus]. < *Am. Nat.*, vii, 1873, p. 500.

A field-note.

1874. Batty, J. H. Eggs and nest of the Yellow bird [Chrysomitris tristis]. < *Forest and Stream*, ii, April 16, 1874, p. 149.

1874. Brewster, W. Spizella breweri(?) in Massachusetts. < *Am. Nat.*, viii, 1874, pp. 366, 367.

1874. Corbin, G. B. Lesser Redpoll and Siskin. < *Zoologist*, 2d ser., ix, 1874, p. 4034.

1874. Clark-Kennedy, A. W. M. On the Occurrence of Emberiza [Plectrophanes] nivalis in full Summer Plumage [in Great Britain]. < *Zoologist*, 2d ser., ix, 1874, p. 3914.

1874. Coues, E. New Variety of the Blue Grosbeak [Goniaphea coerulea var. eurhyncha, Mexico]. < *Am. Nat.*, viii, 1874, p. 563.

1874. Coues, E. The Snow-Bird [Junco hyemalis] as a Sparrow. < *Field and Stream* (newspaper of Chicago, Ill.), Apr. 4, 1874.

With reference to its coming under the provisions of a game-law.

1874. Dybowski, B. Notiz über die Ostsibirischen Pyrrhula-Arten. < *J. f. O.*, 1874, pp. 39–45, pl. i.

Pl. i, *P. cineracea.*—*P. coccinea.*

1874. Gunn, T. E. Lesser Redpoll breeding near Norwich. < *Zoologist*, 2d ser., ix, 1874, pp. 4117, 4118.

1874. Hanf, P. B. Beobachtungen der Fortpflanzung des Fichten-Kreuzschnabels im Winter 1871/72 und 1872/73. < *Verh. (Abh.) k.-k. zool.-bot. Ges. Wien*, xxiv. 1874, pp. 211–216.

1874. HENSHAW, H. W. Synopsis of the Genus Junco. < *Rep. Ornith. Specs. Coll. in* 1871, 1872 *and* 1873 (Expl. W. 100 Merid. 8vo. Washington, 1874), pp. 113, 114.

Scarcely citable as a separate article, as it occurs in a report having a much wider scope. It is well, however, to thus call attention to this one among several essays on this perplexing genus.

1874. KERR, W. J. Crossbills in Denbighshire. < *Zoologist*, 2d ser., ix, 1874, p. 4156.

1874. NATION, W. On the Habits of Spermophila simplex. < *P. Z. S.*, xlii, 1874, pp. 329, 330.

1874. NEWTON, A. The Lesser Redpoll not in Spitsbergen. < *Zoologist*, 2d ser., ix, 1874, pp. 3880, 3881.

1874. RIDGWAY, R. Description of a new bird [Leucosticte atrata] from Colorado. < *Am. Sportsman*, iv, 1874, p. 241.

1874. SWINHOE, R. [Note on the species of Pyrrhula from the Kurile Islands and Japan.] < *Ibis*, 3d ser., iv, 1874, pp. 463, 464.

1875. ALLEN, J. A. [Note on Ammodromus caudacutus var. nelsoni, n. var., from Illinois.] < *Proc. Bost. Soc. Nat. Hist.*, xvii, 1875, pp. 292–294.

1875. "BEVERLY, FRED." [*i. e.*, F. A. OBER.] The pine grosbeak—(Pinicola Canadensis) [*i. e.*, enucleator]. < *Forest and Stream*, iv, Mar. 4, 1875, p. 54.

1875. [COUPER, W.] Ornithological Curiosity. < *Montreal Herald* (newspaper) of Mar. 30, 1875.

Notices nest of *Loxia leucoptera*, containing nearly fledged young, in the snow.

1875. CRITTENDEN, G. W. [Pinicola enucleator in Massachusetts.] < *Forest and Stream*, iv, Feb. 18, 1875, p. 23. See also vol. iii, p. 389.

1875. HÖPFNER, P. Briefliche Mittheilungen [über den Hakengimpel (Pinicola enucleator)]. < *Ber. uber d. xxi. Vers. d. deut. Orn.-Ges.*, 1875, pp. 101–103.

1875. "L. W. L." The pine bullfinch [Pinicola enucleator]. < *Forest and Stream*, iii, Feb. 4, 1875, p. 405. See vol. iv, p. 22.

1875. MAYNARD, C. J. A New Species of Finch [Ammodromus melanoleucus] from Florida. < *Am. Sportsman*, v, Jan. 16, 1875, p. 248.

This is the bird before described by R. Ridgway (*Bull. Essex Inst.*, v, Dec., 1873, p. 198) as *A. maritimus* var. *nigrescens*.

1875. RIDGWAY, R. A Monograph of the Genus Leucosticte, Swainson; or, Gray-crowned Purple Finches. < *Bull. U. S. Geol. Surv.*, 2d ser., No. 2, May 14, 1875, pp. 53–82.

History—Bibliography—Material examined—Discussion of races and varieties—Geographical Distribution—Habits. Then the species monographed are: *L. atrata*, *L. tephrocotis*, *L. t.* vars. *littoralis* and *griseinucha*, *L. australis*, *L. brunneinucha*.

The article is very complete, entering fully into the characters of all these forms of the genus. It became the occasion of a protracted discussion between the author and J. A. Allen: cf. *Bull. U. S. Geol. and Geogr. Surv. Terr.*, ii, 1876, pp. 345–350; *Field and Forest*, ii, 1876, pp. 37–43, and 76–79.

1875. S[ENNETT], G. B. Albino Linnet [Ægiothus linaria]. < *Forest and Stream*, iv, May 13, 1875, p. 215.

1875. SILL, J. M. B. The Western Nonpareil [Cyanospiza versicolor] in Michigan. < *Am. Nat.*, ix, No. 12, 1875, p. 665.

1875. ANON. Pine Grosbeaks [Pinicola enucleator]. < *Forest and Stream*, iv, Apr. 15, 1875, p. 149. [Reprinted from Meadville (Pa.) "Republican."]

1875. ANON. The Confined Purple Finch [Carpodacus purpureus]. < *Oölogist*, i, 1875, p. 5.

1876. ALLEN, J. A. Sexual, Individual, and Geographical Variation in Leucosticte tephrocotis. < *Bull. U. S. Geol. Surv. Terr.*, ii, No. 4, July, 1876, pp. 345–350.

Treating the puzzling genus from the reverse of Ridgway's perspective, and reaching different results. Cf. *op. cit.*, 2d ser., No. 2, May 14, 1875, pp. 53–82; *Field and Forest*, ii, 1876, pp. 37–43, 76–79.

1876. ALLEN, J. A. Sexual Variation in the Genus Leucosticte. < *Field and Forest*, ii, No. 5, Nov., 1876, pp. 76–79.

Rejoinder to Ridgway's reply (*Field and Forest*, ii, 1876, pp. 37–43) to Allen's critique (*Bull. U. S. Geol. Surv. Terr.*, ii, 1876, pp. 345–350) of Ridgway's monograph (*Bull. U. S. Geol. Surv. Terr.*, 2d ser., No. 2, May 14, 1876, pp. 53–82), claiming that the main point at issue has been substantially conceded by Mr. Ridgway.

1876. BICKNELL, E. A. The Crossbill [Loxia curvirostra var. americana] breeding at Riverdale, N. Y. < *Am. Nat.*, x, No. 4, 1876, p. 237.

1876. BREWSTER, W. The Ipswich Sparrow [Passerculus princeps] in New Brunswick. < *Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, p. 52.

1876. BURROUGHS, J. Notes from Our Correspondents. < *Forest and Stream*, v, Jan. 13, 1876, p. 356.

Pinicola enucleator on the Hudson in winter.

1876. C[OUES], E. Breeding Range of the Snow-Bird [Junco hyemalis]. < *Am. Nat.*, x, No. 2, Feb., 1876, pp. 114, 115.

On mountains in Southwestern Virginia.

1876. GILLMAN, H. Protective Resemblance in the Yellow-Bird [Chrysomitris tristis]. < *Am. Nat.*, x, No. 2, 1876, pp. 115, 116.

Color of the birds assimilating with that of flowers of *Verbascum thapsus*.

1876. HENSHAW, H. W. Genus Junco, Wagler. Synopsis of the genus. < *Rep. Geogr. and Geol. Expl. and Surv. West 100th Meridian* (4to, Washington, "1875" = 1876), vol. v, chap. iii, pp. 264–273.

Scarcely citable as a separate article, as it is part of the general report on the Ornithology of the Survey. It is well, however, thus to call attention to one of several essays on this genus, especially as some of the colored plates illustrate the species. The author recognizes the following forms of the genus:—A. *J. hyemalis*, with var. *aikeni*. B. *J. oregonus*, with var. *annectens*. C. *J. cinereus*, with vars. *alticola*, *dorsalis*, and *caniceps*.—Pl. viii, *J. annectens*. Pl. ix, *J. dorsalis*. Pl. x, *J. cinereus*.

1876. [INGERSOLL, E.] Pine finch. < *Forest and Stream*, vii, Oct. 12, 1876, p. 147.

Inquiry whether *Chrysomitris spinus* of Europe does not regularly visit New Brunswick during midwinter.

1876. RIDGWAY, R. "Sexual, Individual and Geographical Variation" in the Genus Leucosticte. < *Field and Forest*, ii, No. 3, Sept., 1876, pp. 37–43.

Continuation of the discussion with Mr. J. A. Allen of the much-vexed question respecting the species of this genus:—See *Bull. U. S. Geol. Surv. Terr.*, No. 2, May 14, 1875, and *op. cit.*, vol. ii, No. 4, July, 1876, pp. 345–350. In the present paper the author goes further into the subject, and concludes that he has "no hesitation" in asserting the distinct North American species of the genus to be *L. griseinucha* Brandt, *L. tephrocotis* Sw., *L. atrata* Ridgw., and *L. australis* Allen. The article is somewhat controversial. Cf. *Ibis*, 1878, p. 104.

1876. ROWLEY, G. D. Zonotrichia albicollis, Bonap. (The American White-throated Sparrow.) < *Rowl. Orn. Misc.*, ii, pt. v, Oct., 1876, pp. 75, 76, pl. xlvi, f. 3.

Captured near Brighton, England, 22d Mar., 1872.—A previous occurrence of the same species in Great Britain, in Scotland, is recorded by Newton, *P. Z. S.*, 1870, p. 52, and by Rob. Gray, *B. of West Scotland*, p. 138, plate. This was taken 17th Aug., 1867, and in Mar., 1868, a notice of the occurrence was communicated by Mr. Angus to the Nat. Hist. Soc. of Glasgow, and a description with a plate was afterwards published in the *Proceedings* of that Society.

1876. SCOTT, D. [W.] The proper specific name of the Song Sparrow. < *Am. Nat.*, x, No. 1, Jan., 1876, pp. 17, 18.

Melospiza fasciata ex *Fringilla fasciata* Gm.; synonymy given. (See Bd., *B. N. A.*, 1858, p. 477.)

1877. BAILEY, H. B. Occurrence of Le Conte's Bunting (Coturniculus lecontei Bon.) in Iowa. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, pp. 26, 27.

1877. Bailey, H. B. Occurrence of Passerculus princeps in New York. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 78, 79.

1877. Brewer, T. M. A New Bird [Centrophanes ornata] to Massachusetts. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 78.

1877. Brewster, W. Northern Range of the Sharp-tailed Finch (Ammodromus caudacutus). < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 28.

1877. Brewster, W Two undescribed nests of California Birds. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, pp. 37, 38.

Carpodacus purpureus var. *californicus*, *Peucœa ruficeps*.

1877. Coale, H. K. MacCown's Longspur [Rhynchophanes maccowni] in Illinois. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, p. 52.

1877. Coale, H. K. Junco oregonus in Illinois. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 82.

1877. Covert, A. B. Nesting of the rose-breasted grosbeak, (Goniaphea ludoviciana). < *Forest and Stream*, viii, April 12, 1877, p. 145.

A variety of eggs with ground color white instead of green.

1877. Harvie-Brown, J. A. Ægiothus exilipes in Europe. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, pp. 51, 52.

1877. [Ingersoll, E.] [Calamospiza bicolor reported from Ipswich, Mass.] < *The Country*, i, Dec. 27, 1877, p. 115.

1877. Ingersoll, E. The Song Sparrows of North America. < *The* (London) *Field*, 1, Nov. 10, 1877, p. 544.

Elaborate and original biography of *Melospiza meloda*.

1877. Lengerke, J. v. [Early arrival of Plectrophanes nivalis in New Jersey.] < *The Country*, i, Dec. 29, 1877, p. 115. See p. 79.

1877. Ragsdale, G. H. Plectrophanes Lapponicus [Centrophanes lapponica] in Texas. < *Oölogist*, ii, No. 11, pp. 79, 80.

1877. Ridgway, R. Mrs. Maxwell's Colorado Museum. Additional Notes. < *Field and Forest*, iii, No. 1, July, 1877, p. 11.

Supplementary to a more general article, ending at *op. cit.*, vol. ii, p. 214; these "additional notes" relating entirely to unusually colored specimens of *Junco caniceps* and *J. annectens*.

1877. Sclater, P. L. Note on the South-American Song-Sparrows. < *Ibis*, 4th ser., i, Jan., 1877, pp. 46–48, pl. i.

Remarks on *Zonotrichia pileata*, *Z. canicapilla* (p. 1, f. 1), and *Z. strigiceps* (pl. 1, f. 2).

1878. Allen, J. A. The Lark-Bunting (Calamospiza bicolor) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 48.

1878. Allen, J. A. Rufous-headed Sparrow (Peucæa ruficeps) in Texas. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 188, 189.

1878. Allen, J. A. The Snow-Bird [Junco hyemalis] in Summer on Mount Wachusett [Mass.]. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 192.

1878. Anon. Birds [Crossbills ?] Hatched in February. < *Forest and Stream*, x, Mar. 7, 1878, p. 75.

1878. Anon. [Nesting of Crossbills.] < *Forest and Stream*, x, Apr. 4, 1878, p. 156.

1878. Bagg, E., Jr. Lincoln's Finch (Melospiza lincolni) breeding in Hamilton County, N. Y. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 197, 198.

1878. Brewer, T. M. [Occurrence of Centrophanes ornata in Massachusetts.] < *Proc. Boston Soc. Nat. Hist.*, xix, for May, 1877, pub. Jan., 1878, pp. 239, 240.

Specimen in the Museum of the Society, shot by C. W. Townsend, July 28, 1878, near Magnolia. Cf. *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 78.

1878. Brewer, T. M. [Occurrence of Centrophanes lapponica in Massachusetts.] < *Proc. Boston Soc. Nat. Hist. for* Oct. 3, 1877, xix, pub. Feb., 1878, p. 257.

Specimen shot in Swampscott, May 1, 1877.

1878. Brewer, T. M. [Occurrence of Ammodromus maritimus in Massachusetts.] < *Proc. Boston Soc. Nat. Hist.*, xix, for Dec. 6, 1877, pub. Feb., 1878, p. 260.

1878. Brewer, T. M. [Letter relating to the Nest and Eggs of Zonotrichia coronata.] < *Ibis*, 4th ser., ii, Jan., 1878, pp. 117, 118.

Fully described, as being the first authentic specimen known.

1878. Brewer, T. M. The Black-throated Bunting (Euspiza americana) [nesting in Massachusetts]. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 190, 191.

1878. Brewer, T. M. The White-crowned Sparrow [Zonotrichia leucophrys] breeding in Vermont. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 195.

1878. Brewer, T. M. Notes on Junco caniceps and the closely allied Forms. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 72–75.

1878. Brewer, T. M. The Seaside Finch (Ammodramus maritimus) in Eastern Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 48.

1878. Brewer, T. M. Nest and Eggs of Zonotrichia coronata. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 42, 43.

1878. Brewer, T. M. Song of Hepburn's Finch (Leucosticte littoralis, Baird). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 189, 190.

Observations of C. Bendire in Oregon.

1878. Brown, N. C. The Sharp-tailed Finch (Ammodramus caudacutus) in Maine. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 98, 99.

1878. "Carnifex, John" (*pseudon.*). Some Western Sparrows. < *The Country* (newspaper of N. Y.), July 20, 1878.

Treating of species of *Plectrophanes*, *Passerculus bairdi*, *Calamospiza bicolor*, etc.

1878. Cooper, W. A. Notes on the breeding habits of Carpodacus purpureus var. californicus, with a Description of its Nest and Eggs. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 8–10.

1878. Coues, E. Note on Passerculus bairdi and P. princeps. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 1–3, pl. i.

Perfunctory letter-press for the plate; but gives complete synonymy of the two species, the former of which is figured on the colored plate.

1878. Coues, E. Pipilo erythrophthalmus with Spotted Scapulars. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 41, 42.

With editorial note by J. A. Allen.

1878. Covert, A. B. Rare Birds [in Michigan]. < *Science News*, i, No. 4, Dec. 15, 1878, p. 64.

Junco oregonus, *J. caniceps*, and others.

1878. Deane, R. Coturniculus henslowi in New Hampshire. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 39.

1878. "E. C. M." A Cardinal Grosbeak [Cardinalis virginianus] in Central Park. < *Forest and Stream*, x, Apr. 4, 1878, p. 156.

1878. [Fitch, E. H.] The Field Sparrow. (Spizella Pusilla.) < *The Journ. of Sci.* (Toledo, Ohio), 2d ser. i, No. 7, Oct., 1878, cut.

Popular biography, with a figure.

1878. Gentry, [T. G.] The Rose-breasted Grosbeak [Goniaphea ludoviciana]. < *The Oölogist*, iv, No. 4, June, 1878, p. 30.

Notes on the habits of the bird.

1878. Henshaw, H. W. On the Species of the genus Passerella. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 3–7.

Reduces them all to subspecies of *P. iliaca.*

1878. Ingersoll, E. Breeding habits of the Goldfinch [Chrysomitris tristis]. < *Forest and Stream*, x, July 11, 1878, p. 442.

1878. Jones, J. M. Cardinal Grosbeak [Cardinalis virginianus] in Nova Scotia in Winter. < *Forest and Stream*, x, May 16, 1878, p. 275.

1878. Koch, E. G. Breeding of the Snow bird [Junco hyemalis] in Pennsylvania. < *Forest and Stream*, x, July 4, 1878, p. 422.

1878. Lawrence, N. T. The Ipswich Sparrow (Passerculus princeps) on Long Island, N. Y. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 102.

1878. Merriam, C. H. Breeding of the Pine Linnet [Chrysomitris pinus] in Northern New York. < *Forest and Stream*, x, July 18, 1878, p. 463.
Giving a full account, from original observations.

1878. Moran, G. H. Breeding Snow-Birds [Junco hyemalis]. < *Forest and Stream*, xi, Oct. 17, 1878, p. 222.
In mountains of North Carolina and Georgia.

1878. "M[erriam?], C. H." Winter Range of the American Goldfinch [Chrysomitris tristis]. < *Forest and Stream*, x, May 30, 1878, p. 319.
Northward to Warner, N. H.

1878. Nicholas, G. W. [Northern Range of Cardinalis virginianus.] < *The Country*, i, Feb. 23, 1878, p. 244.

1878. Purdie, H. A. The Lark-Finch (Chondestes grammaca) again in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 44.
Cf. *Proc. Essex Inst.*, i, 1856, p. 224.

1878. Purdie, H. A. The Black-throated Bunting (Euspiza americana) nesting in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 55.

1878. Ragsdale, G. H. The Painted Lark Bunting (Plectrophanes pictus) in Texas. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 92.

1878. Ridgway, R. Eastward range [to Washington, D. C.] of Chondestes grammaca. < *Bull. Nutt. Ornith. Club*, iii, No. 1, 1878, pp. 43, 44.

1878. [Sclater, P. L., *and* Salvin, O.] Ridgway on the genus Leucosticte. < *Ibis*, 4th ser., ii, Jan., 1878, p. 104.
Notice of the paper in *Field and Forest*, ii, 1876, pp. 37–43.

1878. S[terling], E. An Explanation wanted [of gravel in a Song Sparrow's nest]. < *Forest and Stream*, xi, Dec. 19, 1878, p. 400.

1878. Stockwell, G. A. An early Bird indeed. < *Am. Nat.*, xii, No. 6, June, 1878, p. 399.
Spizella socialis nesting Mar. 21 in Michigan.

1878. [Willard, S. L.] Reflections upon the Habits of the Purple Finch [Carpodacus purpureus]. < *The Oölogist*, iv, No. 2, Apr., 1878, pp. 13, 14.

1878. [Willard, S. L.] Studies on Certain Fringillidæ.—The Grass Finch [Poœcetes gramineus]. < *The Oölogist*, iv, No. 4, June, 1878, p. 31.
Notes on the habits of the bird.

1878. [Willard, S. L.] Studies on Certain Fringillidæ.—The Tree Sparrow [Spizella monticola]. < *The Oölogist*, iv, No. 5, July, 1878, pp. 37, 38.

1878. Williston, S. W. A Foster-Father. < *Forest and Stream*, xi, Aug. 8, 1878, p. 2.
Tame *Cardinalis virginianus* rearing orioles in his cage.

1879. Allen, J. A. The Evening Grosbeak [Hesperiphona vespertina] in New Mexico. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 237.

1879. Atkins, H. A. The Snowbird (Junco hyemalis) in Southern Michigan in Summer. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 238.

1879. Brewer, T. M. The Sharp-tailed Finch—Ammodromus caudacutus,—its Nest, and Eggs. < *The Oölogist*, iv, No. 6, Jan., 1879, pp. 41, 42.
Very full account.

1879. Brewer, T. M. A Word in Defence. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 191, 192.
Merely controversial, with E. Coues, with respect to the position of *Hesperiphona vespertina* in the *List of the Birds of New England*, published by the latter in 1868, occasioned by a remark made in "The History of the Evening Grosbeak," *tom. cit.*, p. 75. An editorial note appended states that the person in mention declines to reply.

1879. BREWSTER, W. Notes on the Habits and Distribution of the Rufous-crowned Sparrow (Peucæa ruficeps). < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, pp. 47, 48.

From the observations of C. A. Allen of Nicasio, Cal.

1879. CADY, W. B. Curious Death of a Bird [Spizella socialis]. < *Science News*, i, No. 15, June 1, 1879, p. 240.

Strangled by a thread from the nest.

1879. COUES, E. Southward Range of Centrophanes lapponica. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 238.

Fort Smith, Arkansas.

1879. COUES, E. Nest and Eggs of the Clay-colored Bunting [Spizella pallida]. < *The Oölogist*, iv, No. 7, Feb., 1879, p. 50.

Quoted from the "Birds of the Northwest."

1879. COUES, E. Nest and Eggs of the Chestnut-collared Bunting [Plectrophanes ornatus]. < *The Oölogist*, iv, No. 10, May, 1879, p. 79.

Quoted from "Birds of the Northwest."

1879. COUES, E. History of the Evening Grosbeak [Hesperiphona vespertina]. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 65–75.

By permission, from advance MS. of *Birds of the Colorado Valley*, Part II. Very full on the geographical distribution and habits of the species, as well as its appearance in previous literature of the subject, the record of which is given, together with a copious synonymy.

1879. [COUES, E.] nest and Eggs of the Chestnut-collared Bunting [Plectrophanes ornatus]. < *The Temperance Vidette* (newspaper of Terrell, Texas) of Sept. 20, 1879.

Quoted from *The Oölogist*, iv, No. 10, May, 1879, p. 79.

1879. DAVIS, F. J. Yellow-winged Sparrow [Coturniculus passerinus]. < *The Oölogist*, iv, No. 6, Jan., 1879, p. 47.

Notes on the nest and eggs of this species.

1879. DEANE, R. Record of the Breeding of Crossbills [Loxia curvirostra americana] in Northern Vermont in 1796. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 121, 122.

Interesting record respecting *Loxia curvirostra americana*, from "The Rural Magazine; or, Vermont Repository," vol. ii, 1796, p. 475, by Thomas Tolman.

1879. DEANE, R. Nesting of the Black-throated Bunting (Euspiza americana) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 122, 123.

1879. HENSHAW, H. W. Melospiza meloda and its Allies. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 155–160.

A very full discussion of the intricate forms of this stock, distinguishing 8 varieties: *MM. meloda, fallax, heermanni, samuelis, mexicana, gattata, rufina*, and *insignis*.

1879. JEFFRIES, W. A. Ægiothus exilipes in Massachusetts. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 121.

1879. JEFFRIES, W. A. The Ipswich Sparrow (Passerculus princeps, Maynard). < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 103–106.

Treated as not specifically distinct from *P. savanna*.

1879. PEARSALL, R. F. Notes on the Purple Finch [Carpodacus purpureus]. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, p. 122.

1879. PECKHAM, B. J. [Nesting of Pipilo erythrophthalmus off the Ground.] < *The Oölogist*, iv, No. 6, Jan., 1879, p. 43.

1879. RAGSDALE, G. H. Song of Cassin's Finch [Peucæa cassini]. < *Science News*, i, No. 9, Mar. 1, 1879, pp. 134, 135.

1879. RAGSDALE, G. H. Pensile Nests of the Painted Bunting [Cyanospiza ciris]. < *Science News*, i, No. 17, July 1, 1879, p. 272.

1879. RAGSDALE, G. H. Nesting of the Snowbird [Junco hyemalis] in Eastern Tennessee. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 238, 239.

1879. RIDGWAY, R. On a new species of Peucæa [illinoensis] from Southern Illinois and Central Texas. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 218–222.

Extended critical comparison with its allies, and G. H. Ragsdale's notes on its habits.

1879. RIDGWAY, R. [Letter on Peucæa illinoensis.] < *Temperance Vidette* (Texas newspaper), Oct. 11, 1879.

1879. RIDGWAY, R. Henslow's Bunting (Coturniculus henslowi) near Washington. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 238.

1879. ROBERTS, T. S. Note on Hesperiphona vespertina. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 237, 238.

The lateness (May 19) of its departure in the spring from Minnesota, where it winters.

1879. SABIN, W. W. [Nesting of Pipilo erythrophthalmus off the Ground.] < *The Oölogist*, iv, No. 6, Jan., 1879, p. 43.

1879. SMITH, G. S[TUART]. Nesting of the Black-throated Bunting (Euspiza americana) < *The Oölogist*, iv, No. 8, Mar., 1879, pp. 58, 59.

1879. SMITH, G. S[TUART]. Nesting of the Sharp-tailed Finch (Ammodromus caudacutus). < *The Oölogist*, iv, No. 9, Apr., 1879, pp. 66, 67.

From original observations in Massachusetts.

1879. [WILLARD, S. L.] Studies on Certain Fringillidæ.—The Savannah Sparrow [Passerculus savanna]. < *The Oölogist*, v, No. 2, Aug., 1879, p. 14.

1879. [WILLARD, S. L.] Studies on Certain Fringillidæ.—The White-throated Sparrow [Zonotrichia albicollis]. < *The Oölogist*, iv, No. 9, Apr., 1879, p. 71.

1879. [WILLARD, S. L.] Studies on Certain Fringillidæ.—The Black Snow Bird [Junco hyemalis]. < *The Oölogist*, iv, No. 11, June, 1879, p. 90.

1879. [WILLARD, S. L.?] Nest and Eggs of Carpodacus purpureus. < *Temperance Vidette* (newspaper of Terrill, Texas), Nov. 22, 1879.

Copied from *The Oölogist*.

1879. W[ILLIAMS, *Mrs.* J.] The Potato Bug Bird [*i. e.*, Goniaphea ludoviciana]. < *Forest and Stream*, xiii, Nov. 20, 1879, p. 827.

In the issue of the same paper of Dec. 18, 1879, appeared letters from "M." [A. C. McElwrath], T. S. Roberts, and S. A. Forbes identifying the bird referred to by Mrs. Williams as above, and testifying to its usefulness in destroying *Doryphora 10-lineata*, The same important fact had been noticed by W. H. Mapes, *Am. Nat.*, vii, 1873, p. 493.

Alaudidæ.

1778. PALLAS, P. S. Den Mongoliska Lärkan (Alauda mongolica), en rar Fogel från Östra Sibirien, funnen och beskrifven af P. S. Pallas. < *Kongl. Svensk. Vetensk.-Akad. Händl.*, 1778, pp. 201–203, pl. vii, f. 2.

1778. PALLAS, P. S. Die Mongolische Lerche, Alauda mongolica. < *Abhandl. d. Schwed. Akad.*, xl, f. 1778, pp. 193–195, pl. —.
Not seen.

1814. LEISLER, J. P. Die kurzzehige Lerche (Alauda brachydactyla). < *Ann. d. Wetter. Ges. f. d. ges. Naturk.*, iii, 1814, pp. 357–359, pl. —.
Not seen.

1835. GARDINER, W. Some Skylarks [Alauda arvensis] were Singing on the Wing on Sept. 27. 1834. in Scotland. < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 614.

1836. LAFRESNAYE, F. DE. Alouette. Alauda. Lin. Certhilauda. Swainson.—Sirli. Lesson. < *Guér. Mag. de Zool.*, 6e année, 1836, classe ii, notices lviii, lix, pp. 1–8, pll. lviii, lix.
Alauda albo-fasciata, p. 3 = *Certhilauda a.*, pl. 58.—*A. rufo-palliata*, p. 4 = *Certhilauda r.*, pl. 59.—Sur les Alouettes à long bec de l'Amérique méridionale, pp. 6, 7; monographie de six espèces.

1838. SYKES, [W. H.] [On the Calandra Lark.] < *P. Z. S.*, vi, 1838, pp. 113, 114.
Made type of *Londra*, g. n., with remarks on its affinities.

1839. WATERHOUSE, G. R. [Description of a New Species of Lark from China (Alauda sinensis).] < *P. Z. S.*, vii, 1839, pp. 60, 61.

1843. BROWN, E. Enquiry.—Does the Female Sky-lark [Alauda arvensis] ever sing? < *Zoologist*, i, 1843, p. 219.

1844. BRIGGS, J. J. Remarks upon [the habits of] the Skylark [Alauda arvensis]. < *Zoologist*, ii, 1844, pp. 657, 658.

1844. FISHER, W. R. Note on the migration of Larks [Alauda arvensis] at Yarmouth. < *Zoologist*, ii, 1844, p. 452.

1845. STREATFIELD, J. F. Anecdote of a Lark's Nest. < *Zoologist*, iii, 1845, p. "1065," *i. e.*, 1075.

1846. RODD, E. H. Occurrence of the Crested Lark (Alauda cristata), near Penzance. < *Zoologist*, iv, 1846, p. 1497.

1846. WATERHOUSE, [G. R.] [Eine Lerche aus China, Alauda sinensis.] < *Oken's Isis*, Bd. xxxix, 1846, p. 618.
P. Z. S., vii, 1839, p. 60.

1847. SLADEN, E. H. M. Supposed New British Lark [Alauda isabellina, sp. n.] < *Zoologist*, v, 1847, p. 1697.

1850. SMITH, J. Occurrence of the Wood Lark (Alauda arborea) in Scotland. < *Zoologist*, viii, 1850, pp. 2849–2851.

1851. GURNEY, J. H. Occurrence of the Shore Lark (Alauda [Eremophila] alpestris) near Yarmouth. < *Zoologist*, ix, 1851, p. 2985.

1851. RODD, E. H. Occurrence of the Continental Crested Lark near Penzance. < *Zoologist*, ix, 1851, p. 3033.

1852. POWYS, T. L. The Shore Lark (Alauda [Eremophila] alpestris) breeding in Devonshire. < *Zoologist*, x, 1852, p. 3707.

1854. ALLIS, T. H. Occurrence of the Shore Lark (Alauda [Eremophila] alpestris) in Yorkshire. < *Zoologist*, xii, 1854, pp. 4251, 4252.

1854. GORGAS, J. Importation of Sky-larks [Alauda arvensis, in the United States]. < *Rep. Comm. Patents for 1853, Agric.*, 1854, pp. 70, 71.

1854. RODD, E. H. Occurrence of the Short-toed Lark (Alauda brachydactyla) at Scilly. < *Zoologist*, xii, 1854, p. 4477.

1855. HELLMANN, A. Otocorys [Eremophila] alpestris bei Gotha erlegt. < *J. f. O.*, iii, 1855, p. 181.

1855. OLPH-GALLIARD, L. [Die Feldlerche, Alauda arvensis, setzt sich auf Bäume.] < *Naumannia*, 1855, p. 215.

1856. BREHM, [C. L.] [Ueber die Ammerlerchen (Melanocorypha).] < *Naumannia*, vi, 1856, pp. 374–376.

1. *M. calandra*, a) *albigularis*, b) *megarhynchos*, c) *subcalandra*; 2. *semitorquata*; 3. *rufescens*. Auch zeigt d. Verf. 2 kurzzehige Lerchenarten vor, *Calandrella ferrunginea* [sic] A. Brhm., und *C. brachyptera*.

1858. BREHM, [C.] L. Etwas über die Haubenlerchen, Galerita, Boje. (Alauda cristata, L., et undata, L.) < *Naumannia*, viii, 1858, pp. 204–213.

1. *Galerita cristata nigricans*, *G. c. major*, *G. c. vulgaris*, *G. c. pagorum*, *G. c. viarum*, *G. c. karinthiaca*, *G. c. pallida*, *G. c. planorum*, *G. c. gallica*, *G. c. tenuirostris*, *G. c. augustistriata*, *G. c. maculata*, *G. c. altirostris*, *G. c. undata*, *G. c. rufescens*. 2. *G. abyssinica*. 3. *G. flava*, *G. f. tenuirostris*, *G. f. crassirostris*. 4. *G. lutea*. 5. *G. theklae*.

1858. SCHILLING, H. Ueber das Vorkommen von Alauda [Eremophila] alpestris in Pommern. < *Naumannia*, viii, 1858, pp. 60–63.

1859. SWINHOE, R. Description of the small Chinese Lark [Alauda cœlivox, Swinh.]. < *Zoologist*, xvii, 1859, pp. 6723–6727.

1860. LOCHE, —. Description de deux nouvelles espèces d'Alouettes découvertes dans le Sahara algérien par le commandant Loche, directeur du muséum d'histoire naturelle d'Alger. < *Rev. et Mag. de Zool.*, xii, 1860, pp. 148–151, pl. 11.

Calandrella reboudia, p. 149, pl. xi, f. 1; *Galerida randoni*, p. 150, pl. xi, f. 2—les deux décrites en 1858 par Loche, *Cat. Mamm. et Ois. de l'Algérie*, pp. 83–85.

1861 [HARRIS, S. D.] Note. < *Field Notes*, i, No. 12, Mar. 23, 1861, p. 92.

Introduction of *Alauda arvensis* in Ohio in 1851.

1861. VIAN, J. Notice sur l'Alouette pispolette, Alauda pispoletta, Pall. et Bp., et sur l'Alouette, Alauda brachydactyla, Temm., Calandrella brachydactyla, Bp. < *Rev. et Mag. de Zool.*, xiii, 1861, pp. 346–353.

1862. BARTLETT, J. P. Occurrence of the Short-toed Lark (Alauda brachydactyla) and other rare Birds in Hampshire. < *Zoologist*, xx, 1862, pp. 7930, 7931.

1862. SAXBY, H. L. Notes upon the Migration and Song of the Skylark [Alauda arvensis]. < *Zoologist*, xx, 1862, p. 8281.

1862. STEVENSON, H. [Letter on occurrence of Eremophila alpestris in Norfolk, England.] < *Ibis*, iv, 1862, pp. 189, 190.

1862. STEVENSON, H. [Letter on another (Ibis, iv, 189) occurrence of Eremophila alpestris in Norfolk, England]. < *Ibis*, iv, 1862, p. 303.

1862. STEVENSON, H. Another [Zool., 1845, 7931] Shore Lark [Eremophila alpestris] in Norfolk. < *Zoologist*, xx, 1862, pp. 8090, 8091.

1863. DES MURS, O. Note sur les espèces du genre Pyrrhulauda et leur œuf. < *Rev. et Mag. de Zool.*, xv, 1863, pp. 209–212.

1863. GATCOMBE, J. Occurrence of the Calandra Lark [Alauda calandra] in Devon. < *Zoologist*, xxi, 1863, p. 8768.

1863. NEWMAN, H. W. Skylarks [Alauda arvensis] congregating in October [in England.] < *Zoologist*, xxi, 1863, p. 8326.

1863. REICHENBACH, L. Frühes [8 Feb., 1861] Nisten der Feldlerche, Alauda arvensis. < *J. f. O.*, 1863, xi, p. 155.

1863. ROBERTS, A. W. The Shore Lark (Alauda [Eremophila] alpestris) near Lowestoft. < *Zoologist*, xxi, 1863, p. 8446.

1864. TYRER, R., JR. A Yellow Skylark [Alauda arvensis]. < *Zoologist*, xxii, 1864, p. 8950.

1865. EEDLE, T. Shore Lark [Eremophila alpestris] near London. < *Zoologist*, xxiii, 1865, p. 9782.

1865. GURNEY, J. H. Note on a Deformity in the Bill of a Sky Lark [Alauda arvensis]. < *Zoologist*, xxiii, 1865, p. 9467.

1865. RAMSAY, E. P. Note on the Nidification of Mirafra horsfieldi. < *P. Z. S.*, Nov. 28, 1865, pp. 689, 690.

1866. ANON. Food of Larks. < *The Intellectual Observer*, viii, 1866, p. 480. (From *Proc. Roy. Soc.*, No. 78.)

Regards grass the chief food in winter.

1866. WATKINS, M. G. The Sky Lark [Alauda arvensis]. < *Zoologist*, 2d ser., i, 1866, p. 498.

Quotation from *Milton's L'Allegro.*

1867. BOND, F. Wood Lark at Brighton. < *Zoologist*, 2d ser., ii, 1867, p. 792.

1867. CLARK-KENNEDY, A. Young Lark feeding other young ones. < *Zoologist*, 2d ser., ii, 1867, p. 949.

1867. CLIFTON, *Lord.* Wood Lark in Kent. < *Zoologist*, 2d ser., ii, 1867, p. 705.

1867. JEFFREY, W., JR. Wood Lark in West Sussex. < *Zoologist*, 2d ser., ii, 1867, p. 756.

1867. ROWLEY, G. D. Shore Larks [Eremophila alpestris] in Suffolk. < *Zoologist*, 2d ser., ii, 1867, p. 560.

1867. WEST, E. Black Sky Lark [Alauda arvensis]. < *Zoologist*, 2d ser., ii, 1867, p. 705.

1868. CLIFTON, *Lord.* Wood Lark [at Eton]. < *Zoologist*, 2d ser., iii, 1868, p. 1132.

1868. DUTTON, J. White Lark [Alauda arvensis] near Eastbourne. < *Zoologist*, 2d ser., iii, 1868, p. 1132.

1868. HENSMAN, H. P. Longevity [21 years] of a Caged Lark. < *Zoologist*, 2d ser., iii, 1868, p. 1254.

1869. GORDON, C. Shore Lark [Eremophila alpestris] in Captivity. < *Zoologist*, 2d ser., iv, 1869, pp. 1513, 1514.

1869. GUNN, T. E. White Sky Lark [Alauda arvensis] in Confinement. < *Zoologist*, 2d ser., iv, 1869, p. 1599.

1869. GURNEY, J. H., JR. Calandra Lark near Exeter. < *Zoologist*, 2d ser., iv, 1869, p. 1599.

1870. BOND, F. Siberian Lark at Brighton. < *Zoologist*, 2d ser., v, 1870, p. 2022.

1870. BORRER, W. Shore Lark [Eremophila alpestris] near Weymouth. < *Zoologist*, 2d ser., v, 1870, p. 2101.

1870. BOYES, F. Shore Larks [Eremophila alpestris] in East Yorkshire. < *Zoologist*, 2d ser., v, 1870, p. 2101.

1870. GUNN, T. E. Buff Variety of Skylark [Alauda arvensis]. < *Zoologist*, 2d ser., v, 1870, p. 2101.

1870. MONK, T. J. Shore Lark [Eremophila alpestris] near Newhaven. < *Zoologist*, 2d ser., v, 1870, p. 2140.

1870. NEWMAN, E. Shore Larks [Eremophila alpestris] near London. < *Zoologist*, 2d ser., v, 1870, pp. 2406, 2407.

1870. RAMSEY, R. G. W. Shore Lark [Eremophila alpestris] at St. Andrews. < *Zoologist*, 2d ser., v, 1870, p. 2022.

1870. RAMSEY, R. G. W. Shore Larks [Eremophila alpestris] near Dunbar. < *Zoologist*, 2d ser., v, 1870, p. 2101.

1870. ROWLEY, G. D. Correction of an Error [Zool. s. s. 1984; Alauda sibirica]. < *Zoologist*, 2d ser., v, 1870, p. 2066.

1871. Boyes, F. Migration of Larks in East Yorkshire. < *Zoologist*, 2d, ser., 1871, pp. 2639, 2640.

1871. Moor, E. C. White Larks. < *Zoologist*, 2d ser., vi, 1871, pp. 2640, 2641.

1871. Sharpe, R. B. On the Alauda bimaculata of Ménétriés. < *Am. Mag. Nat. Hist.*, 4th ser., viii, 1871, pp. 179–181.

1872. Anon. Sky Larks [Alauda arvensis] breeding in an Aviary. < *Zoologist*, 2d ser., vii, 1872, p. 3186.

1872. Hume, A. O. The Skylarks of India. < *Stray Feathers*, i, pp. 38–41.

All the Indian species of *Alauda* are referred to *A. arvensis* and *A. malabarica*. The latter includes *A. gulgula*, *A. malabarica* (vera), *A. triborhyncha*, as subspecies, each with a separate habitat, as well as a fourth from the central provinces, to which no name is given. (Cf. *Ibis*, 1873, pp. 221, 222.)—Not seen: title and comment from *Zool. Rec.*

1873. Corbin, G. B. Migration of the Sky Lark [Alauda arvensis]. < *Zoologist*, 2d ser., viii, 1873, p. 3647.

1873. Gregson, C. S. [Albinotic and Melanotic] Varieties of the Skylark [Alauda arvensis]. < *Zoologist*, 2d ser., viii, 1873, p. 3412.

1873. Homeyer, E. F. v. Monographische Beiträge über einige Gruppen der Lerchen (Alaudidæ). < *J. f. O.*, 1873, pp. 186–209.

Genn. *Hierapterhina*, *Melanocorypha*, *Pallasia*, n. g., p. 190, *Alauda*, *Calandrella* (*C. immaculata* Brhm. MSS., sp. n., 194), *Calandritis* (*C. heinei*, sp. n., p. 197), *Ammomanes*, *Chorys*, *Galerita* (*G. microcristata*, sp. n., p. 64); 23 Arten. Cf. *Zool. Rec.*, x, p. 64.

1873. Homeyer, E. F. v. Notiz über Calandritis heinei Nob. < *J. f. O.*, 1873, pp. 425, 426.

1873. Lilford, *Lord*. [Occurrence of Calandrella reboudia near Seville, Spain. < *Ibis*, 3d ser., iii, 1873, p. 98.

1874. Burroughs, J. Mellow England. < *Scribner's Monthly*, vol. viii, 1874, pp. 559–571.

Contains short account of English skylark, notes upon its possible introduction into the United States, and a comparison of the singing of English and American birds.

1874. Rope, G. T. Early Nesting of Sky Lark [Alauda arvensis, in Suffolk]. < *Zoologist*, 2d ser., ix, 1874, p. 4034.

1875. Coues, E. Letters on Ornithology. No. 4.—The Horned or Shore Lark [Eremophila alpestris]. < *The Chicago Field*, Oct. 7, 1876, fig.

On the habits of this species.

1877. Ingersoll, E. [Inquiry as to introduction of English] Sky Larks [into the U. S.]. < *Forest and Stream*, viii, Mar. 8, 1877, p. 65. See p. 129.

1877. Willicott, W. What becomes of our foreign song-birds. < *Forest and Stream*, viii, Apr. 5, 1877, p. 129.

Reply to question asked by E. Ingersoll (p. 65) concerning skylarks introduced from England to U. S., stating that acclimatization was attempted, several years previous, but none were now known to survive.

1878. Allen, J. A. Early Nesting of the Shore Lark [Eremophila alpestris] near Indianapolis, Ind. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 189.

Young were well grown April 24. (The bird has been known to nest in the N. W. States before the snow was off the ground.)

1878. Davis, F. J. Nesting of the Horned Lark (Eremopila [sic] cornuta) in Central New York. < *The Oölogist*, iv, No. 2, Apr., 1878, p. 9, cut.

1878. Howey, J. M. Breeding of the Shore Lark [Eremophila alpestris] in Western New York. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 40.

1878. Jones, H. T. Breeding of the Shore Lark [Eremophila alpestris] in Western New York. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 189.

Quite common near Rochester, N. Y.; nest with incubated eggs June 6. (Cf. *op. tom. cit.*, p. 40, and *loc. cit.*)

Picidæ.

1701. [MÉRY, J.] De rebus ad Historiam Animalium pertinentibus. < *Reg. Scient. Acad. Hist. Paris* (*Duhamel ed.*), i, 1701, pp. 380–385, fig.
De structurâ Pici linguæ. *Ann.* 1695.

1716. WALLER, R. A Description of that curious Natural Machine, the Wood-Peckers Tongue, &c. < *Philos. Trans.*, xxix, 1716, pp. 509–522, tab. i, figg. 1–9.
Remarkably complete and pertinent, for the time. The writer also takes occasion to criticize and review various authors who had written upon the same subject.

1730. HIRE, [P.] DE LA. Explication mécanique du mouvement de la langue du Pivert. < *Mém. de l'Acad. Roy. des Sciences Paris*, ix, 1730, pp. 238–240, fig.

1733. MÉRY, J. Observations sur les mouvemens de la langue du Piver [Picus]. < *Mém. de l'Acad. Roy. des Sci. pour l'année* 1709, 1733, pp. 85–91, pl. 3.

1740. LINNÆUS, C. Carl Linnæi Beskrifning på en ny Fogel: Picus pedibus tridactylis. < *Kongl. Svensk. Vetensk.-Akad. Handl.*, i, 1740, pp. 222–224.

1742. MÉRY, [J.] Observations on the motions of the tongue of the wood-pecker. < *Hist. and Mem. of the Roy. Acad., for* 1709, *English Abridgment*, iii, 1742, pp. 183–190, pl. iii, figs. 1–3.

1743. LINNÆUS, C. Beskrifning på en ny Fogel: Picus pedibus tridactylis. < *Kongl. Swensk. Wetens. Acad. Handl.*, i (1740), 1743, pp. 214–216.

1803. DAUDIN, F. M. Description d'une nouvelle espèce de Pic trouvée à Porto-Rico. < *Ann. du Mus. d'Hist. Nat.*, ii, 1803, pp. 285, 286, pl. 51.
Picus portoricensis, p. 286, pl. 51.

1821. SWAINSON, W. Observations on the Genus Picus of Linnæus, with Descriptions of two New Species from the Interior of Brazil. < *Mem. Wernerian Nat. Hist. Soc.*, iii, 1821, pp. 288–293.
Read Mar., 1820. *P. chrysosternus*, p. 289; *P. braziliensis*, p. 291.

1824. BERTHOLD, A. A. Einigen Notizen aus der Anatomie und Physiologie des Spechtes im Allgemeinen, des Grasspechtes (Picus viridis) aber insbesondere. < *Oken's Isis*, Jahrg. viii, 1824, pp. 555–558.

1826. LESS[ON, R. P.] Observations sur le genre Picus de Linnæus, et description de deux espèces nouvelles de l'intérieur du Brésil, . . . par William Swainson. . . < *Féruss. Bull.*, 2e sec., vii, 1826, pp. 250, 251.
Mem. of the Wernerian Soc., iii, 1821, p. 288.

1832. GOULD, J. [On a New Species of Woodpecker, Picus imperialis.] < *P. Comm. Sci. Z. S.*, ii, 1832, pp. 139, 140.
"California", the alleged locality, is incorrect.

1833. GOULD, J. [Characters of a New Species of Woodpecker (Picus flavinucha).] < *P. Z. S.*, i, 1833, p. 120.

1835. GOULD, J. Neuer Specht [Picus imperialis], aus Californien in der Nähe von Mexico; grosser als alle andern. < *Oken's Isis*, 1835, p. 433.
Aus d. *P. Comm. Sci. Z. S.*, 1832, p. 139.

1837. TRUDEAU, J. Description of a New Species of Woodpecker [Picus auduboni]. < *Journ. Acad. Nat. Sci. Phila.*, vii, 1837, pp. 404–406.

1840. BOISSONNEAU, —. Nouvelle espèce du genre Pic [Picus rivolii]. < *Rev. Zool.*, iii, 1840, pp. 36, 37.

1843. LAFRESNAYE, [F.] DE. G. Pic. Picus. Linn. P. de Magellan. P. magellanicus ♀ (King. in the Zool. journ., 1827, p. 430). P. jubatus de Lafr., Rev. zool., 1841, p. 242. < *Guér. Mag. de Zool.*, 2e sér., année 1843, Oiseaux, pp. 1, 2, pl. 31.

1844. CABOT, S., JR. [Picus dubius, P. parvus, P. yucatanensis (p. 164), spp. nn. from Yucatan.] < *Proc. Bost. Soc. Nat.*, i, 1844, pp. 164, 165.

1844. Kessler, K. Beitraege zur Naturgeschichte der Spechte. < *Bull. Soc. Imp. Nat. Moscou*, xvii, pt. i, 1844, pp. 285–362, pll. x–xiii, nebst Karte. (Auch separatabdruckt, 8°, Riga, 1844, pp. 80, 4 Taf.)

1te Abtheil. Osteologie, pll. x, xi. 2te Abth. Ueber die Befiederung der Spechte, nebst einigen Bemerkungen über die Bürzeldrüse, die Schleimdrüsen, und der Zungenapparat, pll. xii, xiii.

1845. Lafresnaye, F. de. Sur la genre Picumne, de Temminck, pl. coloriées. < *Rev. Zool.*, viii, 1845, pp. 1–10.

A subhead of the Mélanges Ornithologiques. This is an important piece of monography, making many criticisms and rectifications. Nine species are recognized: *P. cayennensis* (ex Briss.), sp. n., *P. temminckii* (=*P. exilis* Temm.), sp. n., *P. exilis* Licht. (=*P. lichtensteinii*, sp. n.), *P. buffonii* (ex Pl. Enl. 786, f. 1), sp. n., p. 6; *P. pygmœus* (Licht.), *P. albo-squamatus* d'Orb. & Lafr.), *P. olivaceus*, Lafr., *P. cinnamomius* Lafr., *P. d'Orbignyanus* Lafr,, p. 7. These species are ranged in four sections according to their coloration.

1845. Lafresnaye, [F.] de. Rectications [sic] et additions à la monographie du Genre Picumnus. < *Rev. Zool.*, viii, 1845, p. 111.

Voir *tom. cit.*, pp. 1–11.

1845. Malherbe, A. Notice sur quelques espèces de Pics de Brésil. < *Mém. de la Soc. Roy. de Liège*, ii, 1846, pp. 65–70.

Pas vue moi-même; j'ai tiré le titre de la *Bibl.* de Carus et Engelmann.

1845. Malherbe, A. Description de trois espèces nouvelles du genre Picus, Linné. < *Rev. Zool.*, viii, 1845, pp. 373–377.

P. (Leuconotopicus) stricklandi, p. 373; *P. (L.) jardinii*, p. 374; *P. (L.) numidicus*, p. 375.

1845. Malherbe, A. Description de sept espèces nouvelles du genre Picus, Linné. < *Rev. Zool.*, viii, 1845, pp. 399–406.

P. (Chloropicus) pyrrhogaster, 399; *P. (Brachypternopicus) rubropygialis*, *P. (Chloropicus) kirkii*, p. 400; *P. (C.) rufoviridis*, p. 401; *P. (C.) xanthoderus*, p. 402; *P. (Chrysoptilopicus) smithii*, p. 403; *P. (Brachypternopicus) chrysonotus*, p. 404.

1847. Gambel, W. [Note on a tridactyle woodpecker from Georgia, like P. pubescens.] < *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, p. 278.

Same as subsequently described by W. L. Jones under name of *P. lecontei.*

1848. Jones, W. L. Description of a new Species of Woodpecker [Picus Le Contei]. < *Ann. Lyc. Nat. Hist. New York*, iv, 1848, pp. 489, 490, pl. xvii. (Read Mar. 13, 1847.)

It proved to be *P. pubescens* accidentally lacking one toe. Meanwhile, however, Bonaparte distinguished himself by making a new genus *Tridactylia* for it (*Cons. Zygod.*, 1854, 8).

1849. Bird, W. F. W. The New British Woodpecker [Picus villosus; cf. Zool. 2496] killed in Yorkshire. < *Zoologist*, vii, 1849, pp. 2527, 2528.

1849. Higgins, E. T. Occurrence of a supposed new British Woodpecker [Picus villosus; cf. Zool. 2527] near Whitby. < *Zoologist*, vii, 1849, pp. 2496, 2497.

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Picus wilsonii, *P. temminckii*, p. 529; *P. mitchellii*, p. 530; *P. cinereigula*, p. 531; *Dendropicos hartlaubii*, p. 532; *D. lafresnayi*, p. 533; *Celeopicos smaragdinicollis*, *Phaiopicos blythii*, p. 534; *P. jerdonii*, p. 535; *Mesopicos desmuri*, p. 537; *M. cecilii*, p. 538; *Chloropicas guerini*, p. 539; *Chrysopicos cailliautii*, p. 540; *Geopicos campestroides*, p. 541; *Zebrapicus pucherani*, *Melampicos flavigula*, p. 542.

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Chloropicos isidori, p. 154; *Chrysopicos atricollis*, p. 156, spp. nn.

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Pas vue moi-même. Extraite des *Mém. de l'Acad. Nat. de Metz.*—Voir la revue de l'ouvrage par M. H. E. Strickland, inserée dans les *Contrib. Ornith. de Jardine*, 1851, pp. 17–20.

1851. Bird, W. F. W. Note on the Figure [Zool., 2986] of the Hairy Woodpecker (Picus villosus). < *Zoologist*, ix, 1851, pp. 3034, 3035.

1851. Newman, E. Description of the Hairy Woodpecker [Picus villosus], chiefly copied from Wilson's 'American Ornithology.' < *Zoologist*, ix, 1851, pp. 2985–2988, fig.

1851. S[trickland], H. E. Nouvelle Classification des Picinées ou Pics, . . . par M. Alfred Malherbe. 8vo. Metz, July, 1850. < *Jard. Contrib. Orn.*, 1851, pp. 17–20.

Short critical review, with a concordance of Malherbe's generic names.

1852. Malherbe, A. Description de nouvelles espèces de Picidæ. < *Rev. et Mag. de Zool.*, iv, 1852, pp. 550–555.

Chloropicos caroli, p. 550; *Geopicos chrysoïdes*, p. 553.

1853. Cassin, J. Descriptions of new species of Birds of the genera Melanerpes Swainson, and Lanius Linnæus. < *Journ. Acad. Nat. Sci. Phila.*, 2d ser., ii, pt. iii, Jan., 1853, art. xxiv, pp. 257, 258, pll. xxii, xxiii.

Descr. orig. *Pr. Phila. Acad.*, v, 1850–51, pp. 106, 244, 245.—Pl. xxii, *Melanerpes albolarvatus*, before described as *Leuconerpes albolarvatus*, *Pr. Phila. Acad*, v, 1850, p. 106. Pl. xxiii, f. 1, *Lanius pallidirostris*; f. 2, *L. pallens*.

1854. Lafresnaye, F. de. Sur une nouvelle espèce du genre Picumnus, Temminck. < *Rev. et Mag. de Zool.*, 1854, pp. 208, 209.

A sub-head of an article entitled "Mélanges Ornithologiques," *ibid.*, pp. 205–209; the remainder of the article relating chiefly to *Chrysothraupis* (i. e., *Calliste*). The new *Picumnus* is *P. squamulatus*, p. 208.

1854. Malherbe, A. Nouvelles espèces de Picidae. < *J. f. O.*, ii, 1854, pp. 171, 172.

P. nataliae, p. 171; *P. cabanisi*, p. 172.

1854. Malherbe, A. Description d'une nouvelle espèce [Indopicus carlotta] de la famille des Picidæ (Picus Linn.). < *Rev. et Mag. de Zool.*, vi, 1854, pp. 379, 380.

1854–5. Murray, A. On a curious habit of a Californian Woodpecker (Melanerpes formicivorus). < *Proc. Roy. Phys. Soc.*, i, 1854, pp. 1– —; 1855, pp. 18– —.

Not seen: the above title is probably not literally correct.

1855. Anon. Melanerpes formicivorus (Swainson). < *Edinb. New Philos. Journ.*, new ser., i, 1855, pp. 376, 377.

Containing an extract on its nut-storing habits, from Cassin's "Birds of California and Texas."

1855. Murray, A. On a curious habit [storing acorns in holes in bark] stated to have been observed in one of the Woodpeckers [Melanerpes formicivorus] in California. < *Edinb. New Philos. Journ.*, new ser., i, 1855, pp. 363–364.

1855. Pucheran, —. Note sur le Picus atrothorax Less. < *Rev. et Mag. de Zool.*, 2^{e} sér., vii, 1855, pp. 21, 22.

Ce n'est qu'une synonyme de *Picus varius* L. (*Sphyrapicus varius* de Baird).

1856. Antinori, O. Picus cruentatus, Antinori, n. sp. < *Naumannia*, vi, 1856, pp. 411–414, Taf.

1856. [Billings, E.] On the Species of Woodpeckers observed in the vicinity of the City of Ottawa [Canada]. < *Canad. Nat. and Geol.*, i, 1856, pp. 176–189.

Eleven spp.—Various compiled accounts.

1856. Burmeister, H. Ueber die brasilianischen Spechte [Picidæ]. < *Abhandl. Naturf. Gesellsch. zu Halle*, Bd. iii, Jahrg. 1555, 1856, Sitzungsber., pp. 31, 32.

Nicht mir selbst zugänglich.—Titel aus Carus and Engelmann.

1856. Weinland, D. F. Observations on a new genus of Tænioides [(Liga punctata), from the small intestine of Picus auratus]. < *Proc. Boston Soc. Nat. Hist.*, vi, 1856, pp. 59–63.

1857. Gadamer, [H.] Picus tridactylus [in Westgothland brütend]. < *Naumannia*, vii, 1857, Heft i, p. 86.

1858. Bolle, C. Merkwürdige Wintermagazine zweier Spechte Nordwest-amerikas. Nach Cassin und de Saussure mitgetheilt. < *J. f. O.*, vi, 1858, pp. 316–323.

Colaptes rubricatus, *Melanerpes formicivorus*.

1858. Bridges, T. Notes on Californian Birds. With Remarks by P. L. Sclater. *P. Z. S.*, xxvi, 1858, pp. 1–3, pl. (Aves) cxxxi.

Picus rubrigularis Scl., p. 2, pl. 131, sp. n. [=*P. williamsonii*, Newb., *P. R. R. Rep.*, vi, part iv, 1857, p. 89, pl. 34, up. fig., no descr. =*P. thyroideus* Cass., ♂].

1858. [Cabanis, J.] Dendromus meriani keine Species, sondern ein Artefact. < *J. f. O.*, vi, 1858, p. 416.

1858. Malherbe, A. Monographie des Picidés [u. s. w.] < *Naumannia*, viii, 1858, pp. 360–363.

Prospectus.

1858. Sclater, P. L. Description of a new species of Woodpecker [Melanerpes rubrigularis] discovered by Mr. Thomas Bridges in Northern California. < *Ann. Mag. Nat. Hist.*, 3d ser., i, 1858, p. 127.

Cf. *P. Z. S.*, 1858, p. 2.

1859. Marsh, G. S. Occurrence of the Goldenwinged Woodpecker [Colaptes auratus] in England. < *Zoologist*, xvii, 1859, p. 6327.

1859. Pickard-Cambridge, O. Note on a new British Woodpecker [Picus pubescens]. < *Zoologist*, xvii, 1859, p. 6444.

1860. Clifford, E. A. [On Sphyrapicus varius.] < *Prairie Farmer*, April, 1860, and fig. in a subsequent No. of this newspaper.

1860. G[uérin]-M[énéville]. Monographie des Picidés. . . . par Alfred Malherbe . . . < *Rev. et Mag. de Zool.*, xii, 1860, pp. 85–87.

1860. Reinhardt, J. En Bemærkning om den Berettigelse, hvormed Picus tridactylus er anfört i Fortegnelsen paa de i Danmark trufne Fugle. < *Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn for Aaret*, 1859, 1860, pp. 97–102.

1860. Sclater, P. L. On a new Species of Bird (Chloronerpes sanguinolentus). < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, p. 80.

From *P. Z. S.*, Jan. 25, 1859.

1861–62. Malherbe, A. Monographie | des | Picidées | ou Histoire Naturelle | des | Picidés, Picumninés, Yunginés ou Torcols | comprenant | dans la première partie, | L'origin mythologique, les mœurs, les migrations, l'anatomie, la physiologie, la répartition géographique, | les divers systèmes de classification de ces oiseaux grimpeurs zygodactyles, ainsi qu'un | dictionnaire alphabétique des auteurs et des ouvrages cités par abréviation; | dans la deuxième partie, | La synonymie, la description en latin et en français, l'histoire de chaque espèce, ainsi qu'un | dictionnaire alphabétique et synonymique latin de toutes les espèces; | par | Alf. Malherbe | [etc., 6 lignes.] | — | Texte [Planches]—Vol. I [–IV] | Metz—1861 [1862] | — | Typographie de Jules Verronnais, Imprimeur de la Société | d'Histoire Naturelle de la Moselle | 4 vols. folio. (2 vols. texte, 2 vols. pll. color.) Texte, Vol. I, 1861, 1 p. l., pp. i–lxx (+ 6 ll. interpol.), 1–214. Texte, Vol. II, 1862, 1 p. l., pp. 1–325. Planches, Vol. III, 1861, 1 p. l., pp. 1–8, pll. i–lx. Planches, Vol. IV, 1862, 1 p. l., pp. 1–6, pll. lxi–cxxi.

1861. Trembly, J. B. The old time birds. < *Field Notes* (newspaper, Columbus, Ohio), i, No. 9, Mar. 2, 1861, p. 65.

Note of the continuance of *Hylatomus pileatus* in N. W. Ohio.

1861. Wiepken, C. F. Zur Naturgeschichte der Melanerpes melanopogon Licht. aus Californien. < *Bericht über d. xiii. Versamml. der deutsch. Ornith. Gesellsch.*, Apr., 1861, pp. 94– —.

This article, which I have seen, though the above title is taken at second hand, refers to the habit the bird has of storing up acorns.

1862. Lapham, I. A. [Letter on the habits of Sphyrapicus varius.] < *Proc. Boston Soc. Nat. Hist.*, ix, 1862, pp. 55, 56.

1863. Bouvé, T. T. [Remarks on the injury done to a house by Sphyrapicus varius.] < *Proc. Boston Soc. Nat. Hist.*, ix, 1863, pp. 248, 249.

1863. **Cabanis, J.**, *and* **Heine, F.** Museum Heineanum. | — | Verzeichniss | der | ornithologischen Sammlung | des | Oberamtmann | Ferdinand Heine | auf | Gut St. Burchard | vor Halberstadt. | Mit kritischen Anmerkungen und Beschreibung fast | sämmtlicher bekannten Arten systematisch bearbeitet | von | Dr. Jean Cabanis, | erstem Custos der königlichen zoologischen Sammlung in Berlin | und | Ferdinand Heine, | Stud. philos. | — | IV. Theil, | die | Klettervögel | enthaltend. | Heft 2: Spechte [Picidæ]. | — | Halberstadt, 1863. | In Commission der Frantz'schen Buchandlung (G. Loose). 8vo. Titel, pp. 1–180.

Auch unter dem Halbtitel: Museum | Ornithologicum | Heineanum. | — | Pars IV. | Scansores. | — | Sectio II. | Picidæ.

Die neuen genera und species dieser Arbeit sind folgende: *Pipiscus*, *Nannopipo*, p. 9; *Craugiscus*, p. 10; *Picumnus lepidotus*, p. 14; *P. azarae*, p. 20; *Dendrocoptes*, p. 41; *Liopipo*, p. 44; *Dendrotypes*, p. 46; *D. nesiotes*, p. 49; *Xylurgus*, p. 50; *X. subrufinus*, p. 50; *Xylocopus*, p. 51; *Baeopipo*, p. 54; *Dryobates homorus*, p. 65; *Threnopipo*, p. 70; *Cactocraugus*, p. 72; *Dictyopipo*, *Xenocraugus*, p. 74; *Cladoscopus*, p. 80; *Scapaneus*, p. 90; *Cniparchus*, p. 98; *Ipocrantor*, p. 99; *Phloeotomus*, p. 102; *Thriponax*, p. 105; *T. jerdoni*, p. 105; *Xylolepes*, p. 108; *Lepocestes*, p. 110; *Ipophilus*, p. 113; *Ipoctonus* (Heine, 1860) *lepidus*, p. 118; *Thripias*, p. 121; *Ipagrus*, p. 123; *Ipopatis*, p. 129 (*Stictocraugus* Heine, 1860); *Cnipotheres*, p. 131; *Camponomus*, p. 137; *Phaeonerpes reichenbachi*, p. 141; *Campias*, p. 145; *C. agilis*, p. 147; *C. sedulus*, p. 153; *C. hilaris*, p. 154; *Craugasus*, p. 157; *Chrysoptilus punctipennis*, p. 163; *Geciniscus*, p. 174.

Most of these genera are useless and burdensome synonyms, resulting from the authors' purism in rejecting prior names not "classical" in form—a practice totally indefensible, unless in exceptional cases.

The original scope of the *Mus. Hein.*, as begun by Cabanis alone in 1850, was much enlarged in later parts by Cabanis & Heine. Thus, Theil IV. (Scansores), of which this Heft 2 consists of the *Picidæ*, amounts to a monography of the several families treated. Elaborate Latin descriptions of all the species in the collection are given, with a copious synonymy of each; and many other species are also as fully treated in German, in the foot-notes, which latter form a running commentary, especially full in synonymy and in criticism of the literary infelicities of previous writers who misspelled or misformed their generic names. The authors are careful to express their surprise at these "barbarisms" with the note of exclamation, and, what is more to the point, to give the etymology of the many new names they are pleased to invent for themselves. Cf. *Ibis*, 1865, p. 101.

1863. **Cassin, J.** Notes on the Picidæ, with descriptions of new and little known species. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 194–204, 322–328.

61 spp. critically treated. *Picus orizabæ*, *P. vagatus*, p. 196; *Polipicus* (g. n., p. 196) *elliotii*; *Campethera vestita*, p. 197; *Chrysopicus malherbei*, p. 198; *Campephilus bairdii*, p. 322, spp. nn.; *Campethera chrysura*, var. *lineata*, p. 327, n. var.

1863. **Cassin, J.** Descriptions of new and little known species of Birds of the family Picidæ in the Museum of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, v, pl. iv, Nov., 1863, art. x, pp. 457–461, pll. li–lii.

Pl. li, f. 1, *Polipicus elliotii* (descr. orig. *Proc. Acad.*, 1863, 197); f. 2, *Campethera vestita* descr. orig. *l. c.*); f. 3, *Chrysopicus malherbei* (descr. orig. *l. c.*, 198). Pl. lii, f. 1, *Picus vagatus* (descr. orig. *l. c.*, 196); fig. 2, *Celeus mentalis* (descr. orig. *op. cit.*, 1860, 13).

1863. [**Lapham, I. A.**] The Sapsucker [Sphyrapicus varius]. < *Zoologist*, xxi, 1863, pp. 8767, 8768.

From *Proc. Bost. Soc. Nat. Hist.*, ix, 1862, p. 55.

1865. **Bryant, H.** Remarks on Sphyropicus varius Linn. < *Proc. Boston Soc. Nat. Hist.*, x, 1865, pp. 93–95.

Description of hyoid apparatus, in comparison with that of *Picus villosus* and *Colaptes auratus*, and conclusions drawn as to peculiar habits of the bird.

1865. **Hoy, P. R.** The Sapsuck [Sphyrapicus varius]. < *Trans. Illinois State Agric. Soc. for* 1861–4, v, 1865, pp. 730–734, pl.

Habits, food, and peculiarities of hyoid apparatus. Treats also of other *Picidæ*, etc.

1866. **Jackson, C. T.** [Notes on the Habit of Melanerpes formicivorus of hoarding acorns.] < *Proc. Boston Soc. Nat. Hist.*, x, 1866, p. 227.

1866. Lord, J. K. North Western Woodpeckers. < *The Intellectual Observer*, ix, 1866, pp. 321–333, 1 col. pl.

Pl. of *Picus albolarvatus*, ♂, ♀.

1866. Sundevall, C. J. Conspectum Avium Picinarum | edidit | Carolus J. Sundevall | Custos Musei Zool. Stockholmiensis. | — | Stockholmiæ 1866. | Samson & Wallin. 1 vol. 8vo. pp. i–xiv, 1–116.

Præmonenda, pp. iii–vi; Index Operis Malherbei, pp. vii–xii; Distributio Picorum geographica, pp. xii–xiv; Conspectus Picorum, pp. 1–3; Pici species, pp. 4–94.—Picumnus, pp. 95–106.—Iynx, pp. 107–109.—Nomina et synonyma specialia Picorum, exclusis Picumnis et Iyngibus, pp. 110–115. Synopsis subgenerum Pici, pp. 115, 116.

Pici species adprobatae 254; incertæ et spuriæ 24. Picumni species 28. Iyngis species 4.

Synopsis subdivisionum generis Pici: Series I, *Angusticolles*, 1) *Principales*, 2) *Squamicipites*, 3) *Parvicaudati*, 4) *Auricipites*. Series II, *Securirostres*, 5) *Nigrovarii*, 6) *Intermedii*, 7) *Passerini*, 8) *Fulviscapi*, 9) *Menstrui*, 10) *Fuscorubidi*, 11) *Debilipedes*, 12) *Subvirides*. Series III, *Ligonirostres*, 13) *Dominicani*, 14) *Nigropicti*, 15) *Albofasciati*, 16) *Guttiventres*, 17) *Mesospili*, 18) *Flavinuchales*, 19) *Virides*, 20) *Chrysuri*, 21) *Aratores*, 22) *Canipilei*, 23) *Rivolii*, 24) *Aurati*, 25) *Flavifasciati*, 26) *Campestres*. Series IV, *Nudinares*, 27) *Sultanei*, 28) *Auropalliati*, 29) *Fulvicristati*, 30) *Acutirostres*.

Picumni genus in tribus 5 divisum: 1) Picumni enormes, 2) normales, 3) subnormales, 4) abnormes, 5) innormales.

Iyngis generis divisiones desunt.

Species omnes Picinarum auctori obviæ optime describuntur, characteribus specierum et subspecierum datis, adjectisque synonymis, auctorum citationibus, locis, et notis variis; et suum cuique proprium locum in serie analytica adhibet auctor.

Picorum species novæ sequentes in hoc opere descriptæ: *P. canifrons*, p. 26; *P. hedenborgii* (=*P. murinus* Sund., 1850, *nec* Malh., 1845), p. 31; *P. rubidus* (=*reichenbachi* Mus. Hein. *nec* Malh.), p. 35; *P. albipes*, p. 37; *P. scotochlorus*, p. 48; *P. imberbis* (=*Malherbei* Cass. 1863, *nec* Gray), p. 194; *P. submexicanus* (=*mexicanoides* Lafr.), p. 72; *P. flavilumbis*, p. 74; *P. pholidotus* (=*mentalis* Cass. *nec* Temm.), p. 87; *P. squamigularis*, p. 89.

Picorum subspecies novæ ut sequuntur: *P.* (*rubricollis*) *occidentalis*, p. 6; *P.* (*lineatus*) *occidentalis*, p. 8; *P.* (*canente*) *orientalis* et *occidentalis*, p. 11; *P.* (*villosus*) *major*, *medius*, *minor*, p. 16; *P.* (*minor*) *borealis*, p. 26; *P.* (*varius*) *occidentalis*, p. 34; *P.* (*goertan*) *occidentalis*, p. 46; *P.* (*chrysurus*) *occidentalis* et *meridionalis*, p. 64; *P. aurato-mexicanus*, p. 72; *P.* (*sultaneus*) *major*, *indica*, p. 79; *minor*, p. 80; *P.* (*javanensis*) *major*, *minor*, p. 83.

Picumnorum species novæ: *P. micromegas*, p. 95; *P. asterias*, p. 97; *P. spilogaster*, p. 100; *P. guttifer*, p. 101; *P. squamifer*, p. 102; *P. sagittatus*, p. 103; *P. nebulosus*, p. 103.

Iynges novæ nullæ, sed Iyngis torquillæ formæ novæ septemtrionalis et meridionalis describuntur p. 108.

Specierum Picorum cognitarum 254 sunt Americanæ 132, Europæo-Asiaticæ 90, Africæ propriæ 32.

Inter species Pici incertæ et spuriæ sunt 15 dubiæ, 2 defectu partium non agnitæ, 3 aliorum generum Pico confusæ, 4 arte compositæ.

"This useful publication consists of a masterly digest of M. Malherbe's great 'Monographie des Picidées,' published at Metz between 1859 and 1862. Each species is fully described, references being made to the works in which it is figured (when such is the case), and its habitat stated. Excellent indices are also added. The *Picidæ* are divided into three genera only . . . —a very different treatment of the family from that of most modern authors. We think it needless to indicate the precise limits of the smaller groups of species, or their relation to the too numerous so-called genera which have been lately instituted; for the work is one which must be consulted by any one working up the family, and its last pages contain a concise synopsis of their contents . . . The whole of this careful work is in Latin." (*Zool. Rec.*, iii, p. 77). *Cf.* also *Ibis*, 1866, pp. 415, 416.

1868. Berendt, C. H. Report of Explorations in Central America. < (*Twenty-second*) *Ann. Rep. Smith. Inst.* (for 1867), 1868, pp. 420–426.

Allusion to habits of a Woodpecker.

1868. Kedzie, W. K. The Golden-winged Woodpecker [Colaptes auratus]. < *Am. Nat.*, ii, 1868, p. 382.

Laying of 33 eggs by one pair, upon repeated spoliation of their nest.

1868. ———. Saftsugende Træpikkere. < *Tidssk. Pop. Frems. af Naturv.*, 3^{e}. Række, v, 1868, pp. 345–347.

"Sap-sucking Woodpeckers."

1869. BARRY, W. E. The Woodpecker [Picus pubescens] and Sheldrake [Mergus sp.]. < *Am. Nat.*, ii, 1869, pp. 660–662.

Biographical notes.

1869. FOWLER, A. The Golden-winged Woodpecker [Colaptes auratus]. < *Am. Nat.*, iii, 1869, pp. 422–427.

Account of the habits of this species and of *Picus pubescens.*

1869. SAUSSURE, H. DE. Los Picos [Picidæ]. < *La Naturaleza*, i, 1869, pp. 129–133.

Traducido por D. Jesus Sanchez. Sobre las costumbres del "*Colaptes rubricatus*" [*i. e., Melanerpes formicivorus?*].

1871. STROOP, L. J. Habits of the Red-headed Woodpecker [Melanerpes erythrocephalus]. < *Am. Nat.*, iv, 1871, p. 692.

Twenty-two individuals consecutively destroyed while trying to nest in a church-steeple.

1872. CABANIS, J. [Ueber Centurus polygrammus.] < *J. f. O.*, xx, 1872, pp. 157, 158.

1872. GARROD, A. H. Note on some of the Cranial Peculiarities of the Woodpeckers. < *Ibis*, 3d ser., ii, 1872, pp. 357–360, woodc.

With special reference to the presence of a bone believed to be the vomer, absence of which had been asserted. The bone he mentions is situated between the palatals.

1872. THOMPSON, J. M. The Sapsucker [Centurus carolinus]. < *Appleton's Journ.*, viii, Dec., 1872, p. 631.

1873. TRIPPE, T. M. The Golden-winged Woodpecker [Colaptes auratus]. < *Am. Nat.*, vii, 1873, p. 498.

Red feathers in the black cheek-patches of a male of this species from New Jersey.

1873. WHITE, C. A. Woodpeckers [Melanerpes erythrocephalus] Tapping Sugar Trees. < *Am. Nat.*, vii, 1873, p. 496.

Observed to tap sound *Acer saccharinum*, for the purpose, apparently, of feeding on the sap.

1874. FERNALD, C. H. The Red-headed Woodpecker in Maine (Melanerpes erythrocephalus Sw.). < *Am. Nat.*, viii, 1874, pp. 437, 438.

1876. BREWSTER, W. [Habits of] the Yellow-bellied woodpecker (Sphyrapicus varius). < *Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, pp. 63–70.

1876. HERRICK, H. Notes from Our Correspondents. < *Forest and Stream*, v, Jan. 13, 1876, p. 356.

Melanerpes erythrocephalus revisiting Northern New Jersey.

1876. [INGERSOLL, E.] A provident woodpecker (Melanerpes formicivorus). < *Forest and Stream*, vii, Sept. 7, 1876, p. 68.

1876. [NEWCOMB, R. L.] Notes from Our Correspondents. < *Forest and Stream*, v, Jan. 13, 1876, p. 356.

Deformity in tongue of *Colaptes auratus.*

1876. SALVIN, O. [Exhibition of piece of trunk of a pine tree from Guatemala perforated by Melanerpes formicivorus.] < *P. Z. S.*, May 2, 1876, p. 414.

1877. ALDRICH, C. The Red-Headed Woodpecker [Melanerpes erythrocephalus] Carnivorus. < *Am. Nat.*, xi, No. 5, May, 1877, p. 308.

1877. "ARROW." The Red-Headed Woodpecker as an Egg-Sucker. < *Forest and Stream*, Nov. 8, 1877, p. 266.

1877. BOUDWIN, G. Red-Headed Woodpeckers [Melanerpes erythrocephalus]. < *Forest and Stream*, viii, July 26, 1877, p. 420.

1877. CALVIN, S. On Changes of Habit among Woodpeckers. < *Am. Nat.*, xi, No. 8, Aug., 1877, pp. 471, 472.

1877. COUES, E. Letters on Ornithology. No. 12.—Woodpeckers [Picidæ]. < *The Chicago Field*, Jan. 13, 1877, p. 348, figg. 6.

General account of various North American species, with original figures of the heads of *Picus villosus, Sphyrapicus thyroideus,* ♂, ♀, *Melanerpes torquatus, M. formicivorus,* and *Colaptes auratus.*

1877. LYLE, D. A. Notes on the Breeding habits of the Golden-winged Woodpecker [Colaptes auratus]. < *Am. Nat.*, xi, No. 12, Dec., 1877, pp. 747–750.

Very close observation. Note by E. Coues, on the molestation of this large bird by English Sparrows (*Passer domesticus*).

1877. [SCOTT, W. E. D.] Migration of Woodpeckers [Picidæ]. < *The Country*, i, Nov. 10, 1877, p. 31

1878. ALDRICH, C. Red-headed Woodpecker [Melanerpes erythrocephalus] eating Grasshoppers. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 189.

Communicated by E. C[oues]. The birds caught *Caloptenus spretus* on open prairie, half a mile from timber.

1878. ANON. [Death of a woodpecker by fixing its bill in a piece of wood.] < *The Country*, i, March 9, 1878, p. 261.

1878. BAILEY, H. B. Some New Traits for the Red-headed Woodpecker [Melanerpes erythrocephalus). < *Bull. Nutt Ornith. Club*, iii, No. 2, Apr., 1878, p. 97.

Their storing grasshoppers in cracks of wood.

1878. B[REWER], T. M. Picoides Arcticus. < *Forest and Stream*, xi, Oct. 31, 1878, p. 259. See p. 300.

Correcting misstatement on p. 239.

1878. "I. N." Fly-catching woodpeckers. < *The Country*, i, Feb. 9, 1878, p. 213.

1878. MERRIAM, C. H. Nesting of the Banded Three-toed Woodpecker (Picoides americanus) in Northern New York. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 200.

1878. "WILL." The Woodpecker [Melanerpes erythrocephalus] as a Flycatcher. < *Forest and Stream*, ix, Jan. 17, 1878, p. 451.

1879. ALDRICH, C. Habits of the Red-headed Woodpecker [Melanerpes erythrocephalus]. < *Am. Nat.*, xiii, No. 8, Aug., 1879, p. 522.

With special reference to the grasshopper-eating proclivities of the bird.

1879. CALVIN, S. On Changes of Habit among Woodpeckers [Picidæ]. < *The Oölogist*, iv, No. 11, June, 1879, pp. 91, 92.

From *Am. Nat.*, xi, No. 8, p. 471.

1879. HOYT, B. F. Nesting under Difficulties [in the case of Colaptes auratus]. < *Science News*, i, No. 17, July 1, 1879, p. 272.

Interesting note of the finding of "six young flickers (*Colaptes auratus*) in a hole which their parents had dug in the hard dry earth of a perpendicular river bank. This hole was about six inches deep and contained no grass or lining of any kind."

1879. LINDAHL, J. Some New Points in the Construction of the Tongues of Woodpeckers [Picidæ]. < *Am. Nat.*, xiii, No. 1, Jan., 1879, pp. 43, 44, fig.

In *Gecinus viridis* the cornua of the hyoid bone extend far into the nasal cavity of the upper mandible. Asymmetry of the hyoid cornua in other species (but this is well known).

1879. MAYNARD, C. J. The Food of Woodpeckers [Picidæ]. < *Scientific Farmer* (Boston), iv, No. 4, Apr., 1879, pp. 50, 51, 2 cuts.

The figures illustrate bark bored by *Melanerpes formicivorus* to insert acorns, and the stomach of *Colaptes auratus*.

1879. RAGSDALE, G. H. Lewis Woodpecker [Asyndesmus torquatus] in Middle Texas. < *Temperance Vedette* (Terrell, Tex.), Aug. 2, 1879.

1879. RAGSDALE, G. H. Centurus aurifrons. < *Science News*, i, No. 20, Aug. 15, 1879, p. 320.

On its local distribution in Texas.

1879. RAGSDALE, G. H. Centurus aurifrons. < *Temperance Vedette* (newspaper of Terrell, Texas), Sept. 13, 1879.

From *Science News*. On the local distribution of the species in Texas.

1879. RAGSDALE, G. H. Lewis' Woodpecker [Asyndesmus torquatus] in Middle Texas. < *Science News*, i, No. 13, May 1, 1879, p. 208.

1879. SMITH, Q. C. Woodpeckers and Road-runners [Geococcyx californianus]. < *Temperance Vedette* (newspaper of Terrell, Texas), Nov. 1, 1879.

1879. WINTLE, E. D. Pileated Woodpecker [Hylotomus pileatus] in Canada. < *Forest and Stream*, xiii, Jan. 1, 1879, p. 946.

Trochilidæ.

1671. [WINTHROP, J.] A further Accompt of the Stellar Fish; formerly described in Numb. 57, p. 1153; with the Addition of some other Curiosities. < *Philos. Trans.*, vi, 1671, pp. 2221–2224.

P. 2223, description of nest and eggs of the bird subsequently known as *Trochilus colubris;* nest weighed 24 grains; one egg about 5 grains, the other 3½ grains.

1693. GREW, N. The Description of the American Tomineius, or Humming Bird, communicated by Nehemiah Grew, M. D. and Fellow of the Royal Society. < *Philos. Trans.*, xvii, 1693, pp. 760, 761.

Description by Mr. Hamersly, of Coventry; vague and general, but pointing to the bird afterward known as *Trochilus colubris.*

1693. GREW, N. A Query put by Dr. N. Grew, concerning the food of the Humming Bird; occasioned by the Description of it in the Transactions. Numb. 200. < *Philos. Trans.*, xvii, 1693, p. 815.

Whether it be juice of flowers, or small insects. The question was thus opened very early.

1698. BULLIVANT, B. Part of a Letter from Mr. Benjamin Bullivant, at Boston, in New England; to Mr. James Petiver, Apothecary, and Fellow of the Royal Society, in London. Concerning some Natural Observations he had made in those Parts. < *Philos. Trans.*, xx, 1698, pp. 167, 168.

Feeding a "Hum-bird" (*i. e.*, *Trochilus colubris*) in captivity with honey.

1777. ————. Description d'un Oiseau-Mouche. < *Obs. et Mém. sur la Phys.* (*Rozier*,) ix, 1777, pp. 466, 467, fig.

Pas vue moi-même—le titre tiré de Carus and Engelmann.

1778. BADIER, —. Sur la nourriture des Colibris [Trochilidæ]. < *Obs. et Mém. sur la Phys.*, xi, 1778, pp. 32, 33.

Not seen.

1802. AUDEBERT, J. B., *and* VIEILLOT, L. P. Histoire | Naturelle | et Générale | des Colibris, | Oiseaux-Mouches, | Jacamars et Promerops; | [mut. mut.] | Par J. B. Audebert et L. P. Vieillot. | — | A Paris, | chez Desray, Libraire, Rue Hautefeuille, Nº 36. | An XI = 1802. | [De l'imprimerie de Crapelet.] gr. folio. 2 vols. Vol. I, 2 p. ll., pp. i–x, 1–128, pll. 1–70; pp. 1–8, pll. 1–6; pp. 1–28, pll. 1–9. Vol. II, 2 p. ll., pp. 1–128, pll. 1–88; pp. 1–40, pll. 1–16.

Contents of Vol. I.

Oiseaux dorés | ou | a reflets métalliques. | — | Tome Premier. | 1 leaf, backed with Crapelet's imprint.

Title-page of Vol. I, as above, 1 leaf, backed blank.

Advertisement, pp. i–viii. List of subscribers, pp. ix, x. Preface, pp. 1–4.

Histoire Naturelle des Colibris et des Oiseaux-Mouches, pp. 5–128, pll. 1–70.

Histoire Naturelle | des Jacamars. | Par L. P. Vieillot. | pp. 1–8, pll. 1–6.

Histoire Naturelle | des Promerops. | Par L. P. Vieillot, Naturaliste-Voyageur. | pp. 1–22, pll. 1–9.

Table générale des matières [pour les Colibris, les Jacamars et les Promerops], pp. 23–28.

Contents of Vol. II.

Oiseaux dorés | ou | a reflets métalliques. | — | Tome second. | 1 leaf, backed with Crapelet's imprint.

Title page of Vol. II, as follows: | Histoire Naturelle | et Générale | des Grimpereaux | et | des Oiseaux de Paradis. | Par J. B. Audebert et L. P. Vieillot. | — | A Paris, | chez Desray, Libraire, Rue Hautefeuille, Nº 36. | An XI = 1802. | 1 leaf, backed blank.

Histoire Naturelle des Grimpereaux Souï-Mangas. pp. 1–68, pll. 1–41.

Histoire Naturelle des Grimpereaux Guit-guits. pp. 69–84, pll. 42–51.

Histoire Naturelle des Grimpereaux Héoro-taires. pp. 85–106, pll. 52–71.

1802. Audebert, J. B., *and* Vieillot, L. P.—Continued.
Histoire Naturelle des Grimpereaux. pp. 107–128, pll. 72–88.
Histoire Naturelle | des | Oiseaux de Paradis. | pp. 1–34, pll. 1–16.
Table générale des matières. pp. 35–40.

The composition of the whole work is not evident at first sight. As consisting of two vols. folio, the general title is simply Oiseaux dorés ou à reflets métalliques, by Audebert and Vieillot, and such is the preliminary half-title printed on the first leaf of each vol.

But the full title-page of Vol. I is as above given. It includes the Colibris and Oiseaux-Mouches (=*Trochilidæ*), by both authors; then the Jacamars (*Galbulidæ*) by Vieillot, separately paged and half-titled, plates separately numbered; then the Promerops (*Upupidæ*, *Promeropidæ*, etc.) by Vieillot, also half-titled, separately paged, and the plates separately numbered. The vol. closes with a table of contents of the whole, continuously paged with Promerops.

Vol. II is still more composite as to the birds treated, but has only two paginations and two numerations of plates. The preliminary title is Oiseaux dorés, etc., as before, Vol. II. The full-page title is as given above under "Contents"; but the "Grimperaux" of the full title are subdivided by a sort of chapter-headings into "Grimpereaux Souï-Mangas", "Grimpereaux Guit-guits", "Grimpereaux Héoro-taires", and "Grimpereaux"; continuously paged, their plates continuously numbered. Then the "Oiseaux de Paradis" are half-titled, separately paged, and their plates separately numbered. The vol. closes with a table of contents of the whole, continuously paged with Oiseaux de Paradis.

The "Grimpereaux" are a most miscellaneous lot of birds, about equal to the Linnæan *Certhia*; including *Meliphagidæ*, *Cœrebidæ*, *Sylvicolidæ*, *Dendrocolaptidæ*, etc. The Paradise birds are less composite, but still include others than the *Paradiseidæ* of modern authors.

The work is said to have been published in 32 livraisons, the dates of which are unknown to me. The date above given is that of the title-page of each vol., being the completion of the work. There are said to be actually 192 plates, though the ostensible series is 70+6+9+88+16=189. The edition is said to have been of 200 copies. There are said to have been also 100 copies printed on vellum, and 10 copies printed with gold instead of black ink. In the copy examined, in the Libr. Phila. Acad., the names on the plates are all in gold.

Fortunately or otherwise, no scientific nomenclature is used in this luxurious work. It should be used in connection with Vieillot's article "Colibri" in *Nouv. Dict. d'Hist. Nat.*, vii, 1817, which see.

1804. Barton, B. S. Facts relative to the Food of the Humming-Bird [Trochilus colubris]. < *Barton's Med. and Phys. Journ.*, part i, vol. i, 1804, pp. 88, 89.

"— that the *Trochilus* does actually subsist, in part, upon the different species of insects."

1817. V[ieillot, L. P.] Colibri, Trochilus, Lath. < *Nouv. Dict. d'Hist. Nat.*, vii, 1817, pp. 340–376, pll. B 38, B 19.

In Audebert and Vieillot's ouvrage de luxe, *Oiseaux dorés ou à reflets métalliques*, which was completed in 1802, no scientific names are given to the Hummers and other glittering birds so beautifully depicted; but in the present article, Vieillot names many species in due form, with references to the plates of the *Ois. dor.*, as follows:—*T. caudacutus*, V., p. 347; *T. multicolor*, Lath., p. 347; *T. azar*, V., p. 347; *T. superciliosus*, Lath., p. 347 (pll. 17, 18 of *Ois. Dor.*); *T. fuscus*, V., p. 348; *T. galeritus*, Lath., p. 348; *T. cinereus*, Lath., p. 348 (pl. 5 of *O. D.*); *T. leucurus*, Lath., p. 348; *T. nigricollis*, V., p. 349; *T. fulvifrons*, Lath., p. 349; *T. flavifrons*, Lath., p. 349; *T. granatinus*, Lath., p. 350 (pl. 4 of *O. D.*); *T. aurulentus*, Audeb., p. 350 (pll. 12, 13 of *O. D.*); *T. elegans*, Audeb., p. 351 (pl. 14 of *O. D.*); *T. pectoralis*, Lath., p. 351; *T. paradiseus*, Lath., p. 352; *T. cristatellus*, Lath., p. 352; *T. hirsutus*, p. 352 (pl. 20 of *O. D.*); *T. thaumantias*, Lath., p. 353; *T. mango*, Lath., p. 353 (pl. 7 of *O. D.*); *T. mango*, var., p. 353; *T. quadricolor*, V., p. 353; *T. viridis*, V., p. 354 (pl. 41 of O. D.); *T. torquatus*, Lath., p. 354; *T. atricapillus*, V., p. 354; *T. polytmus*, Lath., p. 355 (pl. 47 of *O. D.*); *T. pella*, Lath., p. 355 (pll. 2, 3 of *O. D.*); *T. exilis*, Lath., p. 356; *T. atrigaster*, V., p. 356 (pl. 65 of *O. D.*); *T. punctatus*, Lath., p. 357 (pl. 8 of *O. D.*); *T. viridis*, V. [not *viridis* of p. 354], p. 357 (pl. 15 of *O. D.*); *T. brasiliensis*, Lath., p. 357 (pl. 19 of *O. D.*); *T. holosericeus*, Lath., p. 357 (pl. 6 of *O. D.*); *T. violaceus*, Lath., p. 358; *T. punctulatus*, Lath., p. 358; *T. amethystinus*, Lath., p. 358; *T. albirostris*, V., p. 359 (pl. 45 of *O. D.*); *T. serrirostris*, V., p. 359; *T. cinereus*, V., p. 359; *T. mellivorus*, Lath., p. 360 (pll. 22, 23, 24 of *O. D.*); *T. obscurus*, Lath., p. 361; *T. splendidus*, V., p. 361; *T. ourissia*, Lath., p. 361; *T. carbunculus*, Lath., p. 361 (pl. 5 of *O. D.*); *T. cœruleus*, V., p. 361 (pl. 40 of *O. D.*); *T. maculatus*, V., p. 361 (pl. 44 of *O. D.*); *T. ruficollis*, V., p. 362; *T. leucogaster*, Lath., p. 363 (pl. 43 of *O. D.*); *T. mellisugus*, Lath., p. 363 (pl. 39 of *O. D.*); *T. maximus*, Lath., p. 364; *T. ornatus*, Lath., p. 364 (pl. 49 of *O. D.*); *T. cristatus*, Lath., p. 365; *T. pileatus*, Lath., p. 365 (pl. 63 of *O. D.*); *T. latipennis*, Lath., p. 365 (pl. 21 of *O. D.*); *T. longirostris*, V., p. 366 (pl. 59 of *O. D.*); *T. macrourus*, Lath., p. 366; *T. forficatus*, Lath., p. 366 (pl. 60 of *O. D.*); *T. magnificus*, V., p. 367; *T. marmoratus*, V., p. 367; *T. maugæus*, V., p. 368 (pl. 37 of *O. D.*); *T. auritus*, Lath., p. 368 (pl. 25, 26 of *O. D.*); *T. minimus*, Lath., p. 369; *T. ruber*, Lath., p. 369; *T. cyanurus* V., p. 369; *T. glaucopis*,

1817. V[IEILLOT], L. P.—Continued.

Lath., p. 370; *T. ruficaudatus*, V., p. 370 (pll. 27, 28 of *O. D.*); *T. platurus*, Lath., p. 370 (pl. "98" of *O. D.*); *T. colubris*, Lath., p. 371 (pll. 31, 32, 33 of *O. D.*); *T. rubineus*, Lath., p. 371; *T. moschitus*, Lath., p. 372 (pl. 55 of *O. D.*); *T. saphirinus*, Lath., p. 373 (pll. 35, 57, 58 of *O. D.*); *T. bicolor*, Lath., p. 373 (pl. 36 of *O. D.*); *T. collaris*, Lath., p. 374 (pll. 61, 62 of *O. D.*); *T. leucocrotaphus*, V., p. 374; *T. cyanocephalus*, Lath., p. 375; *T. viridissimus*, var., p. 375 (pl. 40 of *O. D.*); *T. guianensis*, Lath., p. 375; *T. furcatus*, Lath., p. 376 (pl. 34 of *O. D.*). The article acquires consequence from thus furnishing a technical nomenclature to the *Oiseaux Dorés*. Most, if not all, of the species marked "V." are technically new. Many of the rest, attributed to Latham, are really Gmelinian, Linnæan, or other names.—See 1802, AUDEBERT and VIEILLOT.

1822. MAXIMILIAN, —. Ueber die Nahrung der Fliegenvögel (Trochilus) [Trochilidæ]. < *Oken's Isis*, Jahrg. vi, 1822, pp. 470–472.

1824. BULLOCK, [W.] Ueber Colibris. < *Fror. Notiz.*, ix, No. 183, 1824, pp. 100–104.

Nicht mir selbst zugänglich—Titel aus C. u. E. *Bibl.* Aus dessen ,, Six Months' Residence in Mexico " (London, 1824).

1824. WILSON, —. Note sur l'anatomie de l'Oiseau-mouche. < *Bull. Sc. Médic.*, —, 1824, pp. 9– —.

Not seen—title from Giebel.

1827. VOIGT, —. W. Bullock über die Colibri's. (Aus dessen: Six Month's Residence in Mexico etc. London 1824.) < *Ornis*, Heft iii, 1827, pp. 98–111.

1828. [LESSON, R. P.] Histoire Naturelle des Oiseaux-Mouches; par R. P. Lesson. . . . < *Féruss. Bull.*, 2e sect., xv, 1828, pp. 303, 304.

Extrait du Prospectus de cet ouvrage.

1828. RENNIE, J. Nahrung des Colibri. < *Fror. Notiz.*, xxiii, No. 488, 1828, p. 54.

Nicht mir selbst zugänglich—Titel aus Carus u. Engelmann.

1829. ANON. Histoire naturelle des oiseaux mouches, par Lesson. Paris chez A. Bertrand. 29, gr. 8; libr. 1, 2; pl. illum. < *Oken's Isis*, Bd. xxii, 1829, p. 785.

1829. ANON. Histoire naturelle des Oiseaux-Mouches; par M. R. P. Lesson. . . . < *Féruss. Bull.*, 2e sect., xvii, 1829, pp. 123, 124.

1829. ANON. Histoire naturelle des Oiseaux-Mouches; par R. P. Lesson, . . . < *Féruss. Bull.*, 2e sect., xvi, 1829, pp. 281, 282.

1829. ANON. Histoire naturelle des Oiseaux-Mouches; par R. P. Lesson. . . . < *Féruss. Bull.*, 2e sect., xix, 1829, pp. 352, 353.

1829. ANON. Histoire naturelle des Oiseaux-Mouches, etc.; par M. R. P. Lesson, . . . *Féruss. Bull.*, 2e sect., xvi, 1829, pp. 462, 463.

This and the four preceding anonymous titles of similar character are simply notices of the livraisons of the work as they successively appeared; some of them are signed "D."

1829. LESSON. R. P. Histoire Naturelle | des | Oiseaux-Mouches, | ouvrage orné de planches | dessinées et gravées par les meilleurs artistes, | et dédié | A S. A. R. Mademoiselle; | Par R. P. Lesson, | [etc., 8 lignes. | [Quotation.] | — | Paris. | Arthus Bertrand, Libraire, | éditeur du voyage autour du monde du capitaine Duperrey, | Rue Hautefeuille, No 23. | No date. (1829.) 8vo. pp. i–xlvj, 1–223; pll. color. 1–85, + 48 bis (86 plates in all).

Published in 17 livraisons, beginning Jan. 1829; and ending Sept., 1829. This is the original series of Lesson's illustrations of Humming-birds, from which the two succeeding ones and Index Général are to be carefully distinguished. pp. i–xlvj, title, dedication, advertisement (latter dated 10 janvier 1829), and tableau des espèces décrites et figurées dans cette histoire naturelle (mai 1829); 1–223, the regular text; to this belongs the original series of 1–85 (86) plates. This set of plates and accompanying text is citable as one work under the above title, commonly called "Oiseaux-Mouches." The work is found bound in 1 vol., text and plates; or in 2 vols., one of letter-press, the other of plates; or text bound with that of Lesson's two other series of Hummers, the "Colibris" and the "Trochilidées." The plates are either plain or colored; or both, in duplicate sets. Compare the other titles given beyond, at 1830–31, and 1832, same author.

The *Trochilidæ* figured and described in this work are:—Plate 1, *Ornismya petasophora*, p. 37. 2, *O. superba*, p. 40. 3, *O. tristis*, p. 43. 4, *O. rivolii*, p. 48. 5, *O. cyanopogon*, p. 50. 6, *O. cora*, p. 52. 7, 8, *O. chrysolopha*, p. 55. 9, *O. arsennii*, p. 60. 10, 11, *O. aurita*, p. 63. 12, 13,

1829. Lesson, R. P.—Continued.

O. amazili, p. 67. 14, *O. sephaniodes*, p. 69. 15, *O. heteropygia*, p. 72. 16, *O. nattererii*, p. 75. 17, *O. cephalatra*, p. 78. 18, *O. furcata*, p. 82. 19, *O. vesper*, p. 85. 20, *O. temminckii*, p. 88. 21, 22, *O. mellivora*, p. 90. 23, 24, *O. delalandi*, p. 95. 25, *O. hirundinacea*, p. 98. 26, *O. langsdorffii*, p. 102. 27, 28, *O. sapho*, p. 205. 29, 30, *O. mesoleuca*, p. 110. 31, 32, *O. cristata*, p. 113. 33, *O. simplex*, p. 119. 34, *O. simplex*, p. 121. 35. *Campylopterus ensipennis*, p. 124. 36, *Trochilus falcatus*, p. 126. 37, *T. recurvirostris*, p. 129. 38, 39, *T. lugubris*, p. 132. 40, *Ornismya platura*, p. 136. 41, *O. ornata*, p. 139. 42, 43, *O. strumaria*, p. 143. 44, 45, 46, *O. rubinea*, p. 146. 47, *O. amethystina*. 48, 48 bis, *O. colubris*, p. 151. 49, 50, *O. bicolor*, p. 161. 51, *O. audeberti*, p. 164. 52, 53, 54, *O. moschita*, p. 166. 55, 56, 57, *O. sapphirina*, p. 172. 58, 59, *O. glaucopis*, p. 175. 60, *O. viridis*, p. 178. 61, *O. erythronotos*, p. 181. 62, *O. tephrocephalus*, p. 182. 63, *O. albicollis*, p. 184. 64, *O. vieillotii*, p. 186. 65, *O. prasina*, p. 188. 66, 67, *O. sasin*, p. 190. 68, 69, *O. maugei*, p. 194. 70, *O. swainsonii*, p. 197. 71, *O. cyanea*, p. 199. 72, *Trochilus multicolor*, p. 201. 73, *Ornismya waglerii*, p. 203. 74, *O. anna*, p. 205. 75, *O. viridissima*, p. 207. 76, *O. albiventris*, p. 209. 77, *O. brevirostris*, p. 211. 78, *O. albirostris*, p. 212. 79, *O. minima*, p. 213. 80, *O. clementiæ*, p. 216. 81, generic characters. 82, 83, 84, 85, nests. The Tableau des espèces records 58 spp., all under "*Ornismya*," nob., p. x, but rearranged under the "tribes" *Cynanthus* Sw., p. xj; *Phæthornis* Sw., p. xviij; *Platurus*, nob., p. xxij; *Lampornis* Sw., p. xxiij; *Lophornis*, nob., p. xxvij; *Camphylopterus* Sw.; to which 58 spp. there are added (Sept., 1829) *O. clemenciæ*, which was figured pl. 80, but omitted from the Tableau, and *O. cyanocephalus*, nob., p. xlv. Nearly all these species are described as if new—Lesson even giving them new specific names when he quotes older ones, a common practice with this author.

1829. Lyon, *Capt.* Extract of a Letter from Capt. Lyon, R. N., Corr. Memb. Z. S., &c., to a Friend in England, dated Gongo Soco, Brazil, 17th March, 1829. < *Zool. Journ.*, v, 1829, pp. 1, 2, figs. 1, 2.

Relating to the nidification of a species of Humming-bird, which increased the capacity of the nest with the growth of the young.

1829. Rennie, J. Food of the Humming bird. < *Loudon's Mag. Nat. Hist.*, i, 1829, pp. 371, 372.

1830. Anon. Histoire naturelle des Oiseaux Mouches; par R. P. Lesson . . . < *Féruss. Bull.*, 2^{e} sect., xxi, 1830, pp. 142 and 320.

1830. [Lesson, R. P.] Histoire naturelle des Colibris, suivie d'un supplément à l'Histoire naturelle des Oiseaux-Mouches; par R. P. Lesson. . . . < ***Féruss. Bull.***, 2^{e} sect., xxii, 1830, pp. 323–325.

Prospectus.

1830–31. Lesson, R. P. Histoire Naturelle | des Colibris, | suivie | d'un supplément | a l'histoire naturelle | des | Oiseaux-Mouches; | ouvrage orné de planches | dessinées et gravées par les meilleurs artistes, | et dédié | A M. le Baron Cuvier. | Par R. P. Lesson. | [Quotation, 9 lignes.] | — | Paris. | Arthus Bertrand, Libraire, | éditeur du voyage autour du monde du capitaine Duperrey, | Rue Hautefeuille, N° 23. | No date. (1830–31.) 8vo. pp. i–x, 1–196; pll. 1–25, 12 bis, 13 bis (Colibris), 1–39 (Suppl. Ois.-Mouches) = 66 plates in all.

Published in 13? livraisons, monthly or thereabouts, each of 5 or 6 plates and accompanying letter-press, beginning Oct., 1830, and ending Dec., 1831. This is the second series of Lesson's Hummers, consisting of "Colibris" and "Supplément Oiseaux-Mouches," the two portions of this work being continuously paged, but the two sets of plates being separately enumerated: pp. i–x, title, dedication, and preface; pp. 1–90, text of Colibris; pp. 91–192, text of Suppl. Ois.-Mouch.; pp. 193–196, Indexes to each; pll. 1–25, 12 *bis*, 13 *bis*, for Colibris, pll. 1–39 for Suppl. Ois.-Mouches. The text of this work is citable as "Col. et Suppl. Ois.-Mouch.," but in citing the plates, it must be specified which series is meant. Compare same author at 1829 and 1832.

The following are figured and described in "Colibris:"—Pl. 1, *Ramphodon* (g. n.) *maculatum*, p. 18. 2, 3, 4, 5, *Trochilus pella*, pp. 21, 27, 31, 33. 6, 7, *T. superciliosus*, pp. 35, 38. 8, *T. squalidus*, p. 40. 9, *T. rufigaster*, p. 43. 10, *T. auratus*, p. 46. 11, *T. viridis*, p. 50. 12, 12 bis, *T. gramineus*, pp. 52, 56. 13, 13 bis, 14, *T. mango*, pp. 58, 62, 64. 15, *T. nitidus*, p. 66. 16, 17, 18, 19, *T. aurulentus*, pp. 68, 71, 73, 74. 20, *T. holosericeus*, p. 76. 21, *T. hirsutus*. 22, *T. leucurus*. 23, *T. simplex*, p. 86. 24, *T. prevostii*, p. 87. 25, Détails anatomiques et caractères des Colibris.

In the "Suppl. Ois.-Mouches" are described and figured the following:—Pl. 1, *Ornismya dupontii*, p. 100. 2, *O. audenetii*, p. 102. 3, *O. anais*, p. 104. 4, *O. chrysura*, p. 107. 5, *O. sephanioides*, p. 109. 6, *O. simplex*, p. 111. 7, *O. anna*. 8, *O. clemenciæ*, p. 115. 9, 10, *O. cyanopogon*, pp. 117, 119. 11, 12, 13, *O. sasin*, pp. 121, 123, 124. 14, *O. tricolor*, p. 125. 15, *O. pampa*, 1830–31. Lesson, R. P.—Continued.

p. 127. 16, *O. langsdorffii*, p. 129. 17, 18, *O. cyanocephala*, pp. 132, 134. 19, *O. delalandii*, p. 136. 20, 21, 22, *O. amethystina*, pp. 138, 141, 142. 23, *O. cyanea*, p. 143. 24, *O. avocetta*, p. 145. 25, *O. eriphile*, p. 148. 26, *O. wiedii*, p. 150. 27, *O. arsennii*, p. 152. 28, 29, *O. arsenoe*, pp. 154, 156. 30, *O. oenone*, p. 157. 31, *O. platura*, p. 159. 32, *O. chrysolopha*, p. 162. 33, *O. superba*, p. 164. 34, *O. recurvirostris*, p. 166. 35, *O. nuna*, p. 169. 36, *O. dumerilii*, p. 172. 37, 38, *O. canivetii*, pp. 174, 177. 39, *O. hirundinacea*, p. 179.

1830. Loddiges, [G.] [Cephallepis, g. n.] < *P. Z. S.*, i, 1830, p. 12.

1830. Schiede, —. *and* Deppe, —. Humming Bird and Insects at a great height on the Volcano of Orizaba. < *Edinb. New Philos. Journ.*, viii, 1830, pp. 203, 204.

1830. Vigors, N. A. [Characters of a New Species of Humming-bird, Trochilus loddigesii Gould.] < *P. Z. S.*, i, 1830, p. 12.

1831. Anon. Histoire naturelle des Oiseaux-Mouches, par R. P. Lesson. . . . < *Féruss. Bull.*, 2^e sect., xxiv, 1831, pp. 200–202.

This is simply one of the many notices of Lesson's works on Hummers which appeared in this Bulletin during the progress of the publication.

1831. Anon. Histoire naturelle des Colibris, . . . ; par R. P. Lesson. . . . < *Féruss. Bull.*, 2^e sect., xxiv, 1831, p. 202.

1831. Anon. Histoire naturelle des Colibris, . . . ; par R. P. Lesson. . . . < *Féruss. Bull.*, 2^e sect., xxv, 1831, pp. 118, 119.

1831. Anon. Les Trochilidées ou les Colibris, et les Oiseaux-Mouches; par R.-P. Lesson. . . . < *Féruss. Bull.*, 2^e sect., xxvi, 1831, pp. 77–79.

Prospectus.

1831. Lyon, *Capt.* [Ueber das Nest der Colibri.] < *Oken's Isis*, Bd. xxiv, 1831, p. 714.

Auszug aus den *Zool. Journ.*, Bd. v, No. xvii, 1829, pp. 1, 2.

1831. Vigors, N. A. [Remarks on exhibition of several species of Humming-birds.] < *Philos. Mag.*, ix, 1831, p. 62.

From *P. Z. S.*, i, Dec. 14, 1830, p. 12, *q. v.* for an n. sp.

1832. Lesson, R. P. Les | Trochilidées | ou | les Colibris | et | les Oiseaux-Mouches, | suivis d'un Index Général, | dans lequel sont décrites et classées méthodiquement toutes les races | et espèces du genre Trochilus. | Ouvrage orné de planches | dessinées et gravées par les meilleurs artistes, | par R. P. Lesson. | Splendet ut sol. | Marcgrave. | — | Paris. | Arthus Bertrand, Libraire, | éditeur du voyage autour du monde par le Capitaine Duperrey, | rue Hautefeuille, nº 23. | No date. (1832.) 8vo. pp. i–iv, 1–171, i–xliij (Index Général), pll. 1–66.

The Index separately titled as well as paged, thus: Index | Général et Synoptique des oiseaux | du | Genre Trochilus, | Par R. P. Lesson. | — | Paris. | Arthus Bertrand, Libraire, | éditeur du voyage autour du monde par le capitaine Duperrey, | rue Hautefeuille, nº 23. | — | M DCCC XXXII. 8vo. pp. i–xliij.

Published in 13? livraisons, monthly or thereabouts, each of 5 plates and accompanying letter-press. The "Colibris" was finished in Dec., 1831, and the preface to the "Trochilidées" is dated 1831; but probably nothing appeared until 1832, which latter is the date of completion of the work, on the title of the Index Général. Compare same author, at 1829 and 1830–31.

In this, the third and last series of Lesson's Hummers, are described and figured:—Plate 1, *O. colubris*, p. 1. 2, *Troch. longuemareus*, p. 15. 3, *T. mazeppa*, p. 18. 4, *O. cristata*, p. 20. 5, *T. buffonii*, p. 31. 6, *O. vesper*, p. 33. 7, *O. viridissima*, p. 35. 8, 9, 10, 11, *O. vieillotii*, pp. 37, 41, 44, 46. 12, *O. petasophora*, p. 48. 13, *T. davidianus*, p. 50. 14, *O. sapphirina*, p. 53. 15, *O. moschita*, p. 55. 16, 17, *O. bicolor*, pp. 58, 60. 18, *T. bourcieri*, p. 62. 19, *T. intermedius*, p. 65. 20, 21, *T. pella*, pp. 68, 70. 22, *O. cyanea*, p. 72. 23, *O. avocetta*, p. 74. 24, *O. ornata*, p. 77. 25, 26, 27, *O. amethystoides*, pp. 79, 81, 83. 28, 29, *O. orthura*, pp. 85, 88. 30, nid de l'ois.-mouche Améthyste, avec son œuf., p. 90. 31, *T. eurynome*, p. 91. 32, *O. albiventer*, p. 94. 33, *O. viridis*, p. 96. 34, *O. superba*, p. 99. 35, *O. langsdorffii*, p. 101. 36, *O. gouldii*, p. 103. 37, *O. underwoodii*, p. 105. 38, *O. kingii*, p. 107. 39, 40, *O. cora*, pp. 109, 111. 41, *O. delalandii*, p. 113. 42, *O. atala*, p. 115. 43, *O. sasin*, p. 117. 44, *O. guy*, p. 119. 45, *O. mesoleuca*, p. 122, 46, 47, *T. eusipennis*, pp. 124, 127. 48, *O. vesper*, p. 129. 49, *O. sapho*, p. 131. 50, *T. stokesii*, p. 135. 51, *T. loddigesii*, p. 138. 52, *O. amethystina*, p. 140. 53, *O. coeligena*, p. 141. 54, *O.*

1832. Lesson, R. P.—Continued.

viridis, p. 144. 55, 56, *Ramphodon anais*, pp. 146, 148. 57, *Ornismya! anais*, p. 151. 58, *O. cristata* (nid), p. 153. 59, *O. petasophora*, p. 154. 60, *O. tricolor*, p. 156. 61, *O. nattererii*, p. 158. 62, *T. longuemareus*, p. 160. 63, 64, *O. montana*, pp. 161, 163. 65, *O. kieneri*, p. 165. 66, *O. swainsonii*, p. 167.

In the Index Général, 1832, the 110 spp. treated in all three of Lesson's series of Hummers are rearranged systematically, according to the author's classification, in 27 "races" and sundry "tribes," with short characters and synonymy. *Lesbia* Less., p. xvij; *Cœligena* Less., p. xviij.

These three books may be found bound in different ways: generally, with text of all three together, and plates in three separate vols. Index Général belongs to "Trochilidées," as per title of the latter, but is separately titled and paged. There are in the whole series 86 + 66 + 66 = 218 plates, but only about 110 species are treated. There are both plain and colored issues of the plates—both together, in the copy examined.

These three books are hard to get the hang of; the titles are so curiously mixed up that there is endless confusion in citing them, especially at second-hand. The three separate series are perfectly distinct works, bibliographically speaking, yet represent a single monograph of the Hummers, with titles enough alike to be confusing, yet not different enough to be distinctive until they are studied out. The following summary may therefore be useful:

Less., "*Ois.-Mouch.*", pp. i–xlvj, 1–233, pll. 1–48, 48 *bis.*, 49–85 (86 plates). Date, 1829.

Less., "*Colibris et Suppl. Ois.-Mouch.*", pp. i–x, 1–196 (*Colibris*, pp. 1–90; *Suppl. O.-M.*, pp. 91–192). *Colibris*, pll. 1–12, 12 *bis*, 13 *bis*, 14–25. *Suppl. O.-M.*, pll. 1–39 (66 plates in the two series). Date, 1830–'31.

Less., "*Trochilidées*," pp. i–iv, 1–171, pll. 1–66. Date, 1832.

Index Général, pp. i–xliij, no plates. Date, 1832.

Lesson's work on the Hummers is notable as one of the earliest extensive monographies of this extraordinary family of birds, being only preceded by that of Audebert and Vieillot. It treats, however, of only about one-third of the species now known, and its claims as a contribution to science are not of the highest. The plates are finely finished, being good work of this French kind, and when colored become very pretty pictures; but the technic of the work, as already hinted, is of moderate merit. Many new species and several new genera are named, and various species are renamed even when the author knew and cited their prior designations—a reprehensible habit which Lesson not seldom indulged.

It appears from *Rev. Zool.*, iii, 1840, p. 71, that Lesson intended to publish a fourth vol.; but it remained ined.

1832. Loddiges, G. [Characters of Four New Species of Humming-birds from Popayan, in the Collection of John Gould.] < *P. Z. S.*, ii, 1832, pp. 6, 7.

Trochilus tyrianthinus, p. 6; *T. eurypterus*, *T. flavescens*, *T. gouldii*, p. 7.

1832. Loddiges, G. [Exhibition and characters of several Humming Birds from Popayan.] < *Philos. Mag.*, xi, 1832, p. 461.

From *P. Z. S.*, Jan. 10, 1832, pp. 6, 7, *q. v.*

1832. Waterton, C. Humming-birds. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 473–476.

Miscellaneous notes of habits.

1832. Waterton, C. The Green Humming-bird. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 675, 676.

1832. White, A. Ueber Colibris. < *Fror. Notiz.*, xxxv, No. 750, 1832, pp. 20–23.

Nicht mir selbst zugänglich—Titel aus Car. und Eng.

1833. Jardine, W. The | Naturalists' Library. | Ornithology. | Vol. I [II]. | Humming-Birds. | By | Sir William Jardine, Bart. | F. R. S. E. F. L. S. &c. &c. | Edinburgh: | W. H. Lizars, and Sterling and Kenney; | Longman, Rees, Orme, Brown, Green, and | Longman, London; | and W. Curry, Jun. and Co. Dublin. | — | 1833. 2 vols. 16 mo. Vol. I: a green half-cover-title, 1 leaf; a notice, 1 leaf; advts., pp. 1–6; half-title, 1 leaf; portrait of Linnæus; engr. col'd title, backed blank; full title as above, backed with W. Ballantyne & Co.'s imprint; contents, pp. i–iii; blank, p. iv; advt., pp. 1–10; half-title to memoir of Linnæus, pp. 11, 12; memoir of Linnæus, pp. 13–48; regular text of Humming-birds, pp. 49–147, with pll. col'd 1–34; advts., pp. 1–32 and pp. 1–8. Vol. II, not handled by me.

1833. Jardine, W.—Continued.

"The Naturalists' Library," which reached about 40 vols. through several years, was started in 1833 with Jardine's "Humming-Birds," in 2 vols. The above is the full title and collation of the original issue, in cheap binding and loaded with advts., differing materially from the later reissue, when the many vols. were systematically rearranged, Mammals first, then Birds, &c. In the final rearrangement, these two Humming-Bird vols. become "Humming-Birds.—Part I [II]", and form Vols. VI, VII. The main text, and the plates, are identical in any issues; but the titles and the furnishings differ. (Compare next title.)

"The Naturalists' Library" was a publisher's enterprise; but the weight of the editor's name, the excellence of the text, and the beauty of the plates, rendered it a very notable work, of no less scientific merit than popular interest and usefulness.

1833. Jardine, W. The | Naturalist's Library. | Edited by | Sir William Jardine, Bart., | F. R. S. E., F. L. S., etc., etc., | Vol. VI [VII]. | — | Ornithology. | Humming Birds.—Part I [II]. | By the Editor. | — | Edinburgh: | W. H. Lizars, [etc.] n. d. [1833.] 2 vols. 16mo. Vol. VI: portrait of Linnæus; eng. col'd title; other title; contents, 2 leaves; pp. i–xxxii, 25–191, cuts, pll. col'd 1–34. Vol. VII: portrait of Pennant; eng. col'd title; other title; contents, 2 leaves; pp. 1–192, cuts, pll. col'd, 1–30.

Being Vols. I, II, of the original issue. The date here given is that of the original issue; I do not know exactly when the reissue was made. On the systematic rearrangement of the many vols. of the series, the Hummers, originally Vols. I and II, became "Humming-Birds, Part I [II]," and then formed Vols. VI, VII, of the rearranged series. (Compare last title.)

These two vols. contain memoirs of Linnæus (Vol. VI) and of Pennant (Vol. VII), and otherwise consist of a monograph of *Trochilidæ;* the text by Jardine, the illustrations by Lizars.

Vol. VI: *Ramphodon nævius*, pl. 1; *Troch. avocetta*, pl. 2; *T. recurvirostris*, pl. 3; *T. rufigaster*, pl. 4; *T. colubris*, pl. 5; *T. anna*, pl. 6; *T. cyaneus*, pl. 7; *T. prasina*, pl. 8; *T. quadricolor*, pl. 9; *T. delalandii*, pl. 10; *T. moschitus*, pl. 11; *T. sephanoides*, pl. 12; *T. petasophorus*, pl. 13; *T. scutatus*, pl. 14; *T. ornatus*, pls. 15, 16; *T. audenetii*, pl. 17; *T. chalybeus*, pl. 18; *T. magnificus*, pls. 19, 20; *T. cornutus*, pls. 21, 22; *T. furcatus*, pl. 23; *T. vesper*, pl. 24; *T. cora*, pl. 25; *T. dupontii*, pl. 26; *T. enicurus*, pl. 27; *T. saphirinus*, pl. 28; *T. leucotis*, pl. 29; *T. mellivorus*, pl. 30; *T. multicolor*, pl. 31; *T. gramineus*, pls. 32, 33; *T. latipennis*, pl. 34 (name *Campylopterus latipennis* on pl.).

Vol. VIII: *T. thalassinus*, pls. 1, 2 (*T. auris* on pl.); *T. gigas*, pl. 3; *T. coelegena*, pl. 4; *T. stokesii*, pl. 5; *T. loddigesii*, pl. 6; *T. delalandii*, ♀, pl. 7; *T. orthura*, pl. 8; *T. amethystoides*, pl. 9 (*T. amethystina* on pl.); *TT. rubineus, montana*, no pl.; *T. langsdorffii*, pl. 10; *T. rufus*, pl. 11; *T. gouldii*, pl. 12; *T. tricolor*, pl. 13; *T. lucifer*, pl. 14 (*T. cyanopogon* on pl.); *T. petasophorus*, pl. 15; *T. wagleri*, pl. 16; *TT. bicolor, maugerii, glaucopis, cœruleus, swainsonii, erythronotus, cyanogenys, atala*, no pl.; *T. mesoleucus*, pl. 17; *TT. squamosus, albicollis, superbus*, no pl.; *T. rivolii*, pl. 18; *T. buffonii*, pl. 19; *T. mango*, pl. 20; *TT. viridis, holosericeus, leucurus, aurulentus, hypophæus*, no pl.; *T. polytmus*, pl. 21; *T. underwoodii*, pl. 22; *T. sparganurus*, pl. 23; *T. nuna*, no pl.; *T. pella*, pls. 24, 25; *T. superciliosus*, pls. 26, 27; *T. eurynome*, pl. 28; *T. guy, T. intermedius, bourcieri, squalidus, longuemareus, rufigaster, davidianus*, no pl.; *T. hirsutus*, pl. 29; *T. mazeppa*, no pl.; *T. swainsoni*, pl. 30. The synopsis, which follows, is briefly synonymatic and descriptive, adopting Swainson's five subfamilies. This series of illustrations, coming after Lesson's works on the same subject, furnish a valuable check on the species so indiscriminately described as new by the latter, to the great prejudice of others, especially Vieillot.

1833. La Llave, P. de. [Memoria sobre algunas especies nuevas del género Trochilus.] < *Registro Trimestre*, vol. ii = núm. 5, Enero de 1833, pp. 39–50.

T. cohuatl, p. 47; *T. xicotencal*, p. 48; *T. tzacatl*, p. 48; *T. papantzin*, p. 48; *T. topiltzin*, p. 49. This article has no title, and appears to be little known. I commend it to notice, as containing descriptions of five new Hummers, the names of which, given in due Linnæan form, doubtless antedate others now in general employ.

1833. Schreibers, C. v. [Neue Arten von Trochilus.] < *Oken's Isis*, Bd. xxxvi, 1833, pp. 534, 535.

,, Regierungs-Rath von Schreibers aus Wien legte eine Probe des von ihm beabsichtigten, gemeinschaftlich mit den osterreichischen Naturforschern herausgegebenden Werkes vor, worinn die von den Oesterreichern in Brasilien neu entdeckten Thiere beschrieben und abgebildet werden sollen. Dieselbe besteht in dem ersten Hefte des ornithologischen Theiles, welcher die Beschreibung und Abbildung zweyer neuer Trochilus-Arten enthält, die er dem Könige und der Königinn von Ungarn zu Ehren *Trochilus regis* und *Trochilus reginae* nennt, und führet den Titel: *Collectanea ad faunam Brasiliae.*"

1833. SCHREIBERS, C. v. Caroli a Schreibers | Museorum Regio-Caesareo-Aulicorum ex Hist. Nat. Praefecti etc., | Collectanea | ad | Faunam Brasiliae. | — | Nova Genera et Species animalium, | a naturae scrutatoribus Caes. Austriacis in Brasilia collectorum, | descripta et iconibus illustrata. | — | Fasciculus I. | — | Viennae. | Impensis Editoris. | 1833. Folio. Cover-title, other title, pp. 1–4, pl. 1.

No more published.—The above is the cover-title of the publication as a whole, of which the present piece is Fasciculus I. To this there is special title as follows: Collectanea | ad Ornithologiam Brasiliae. | — | Beyträge zur Vögelkunde Brasiliens. | — | Neue Arten von Blumenspechten, Colibri; | beschrieben | von | Karl von Schreibers. | — | Wien. | Auf Kosten des Herausgebers. | MDCCCXXXIII. [Gedruckt bey Anton Strauss's sel. Witwe.]

The 4 pages of text are devoted to the description of two new species of *Trochilidæ*, viz: *T. regis*, p. 1, pl. 1, f. 1 and 1 a; and *T. reginæ*, p. 3, pl. i, f. 2. Besides these, the Plate gives—fig. a, *T. ornatus*; f. b., *T. magnificus*; f. c., *T. strumarius*.

There is no other ornithological matter. Cf. *Isis*, 1833, pp. 534, 535.

1834. BARNES, *Mrs.* —. [Note on the rearing of a species of Humming-bird (Mellisuga humilis?)] < *P. Z. S.*, ii, 1834, p. 33.

1834. GUILDING, L. Facts on Humming-Birds, their Food, the Manner in which they take it, and on their Habits; with Directions for preserving the Eggs of Humming-Birds, and the Forms of the Bodies of Spiders, and Pupæ and Larvæ of Insects. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 569–573.

1834. VIGORS, N. A. [Trochilus loddigesii.] < *Oken's Isis*, Bd. xxvii, 1834, p. 814.

Auszug aus *Philos. Mag.*, ix, 1831, p. 62.

1835. BARNES, [*Mrs.* —.] [Colibri aus Jamaica.] < *Oken's Isis*, Bd. xxviii, 1835, p. 1026.

Auszug aus den *P. Z. S.*, ii, 1834, p. 33.

1835. GERVAIS, [P.] Oiseaux-mouches. Ornismya. Less. < *Guér. Mag. de Zool.*, 5^e^ année, 1835, class ii, notices xli, xlii, pll. xli, xlii.

O. ricordii, Gerv., pll. xli, xlii, n. sp.

1835. GERVAIS, [P.] Oiseau-mouche. Ornismya. O. cinnamomon. O. cinnamomeus. Gervais. < *Guér. Mag. de Zool.*, 5^e^ année, 1835, classe ii, notice xliii, pl. xliii.

1835. GUILDING, L. Ueber die Nahrung des Colibris. < *Fror. Notiz.*, xliii, No. 930, 1835, pp. 71, 72.

Nicht mir selbst zugänglich. Titel aus Carus und Englm. Aus dessen „ Facts on Humming-Birds," u. s. w., in *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 569–573.

1835. LODDIGES, G. [Vier Arten der Trochilidæ.] < *Oken's Isis*, Bd. xxviii, 1835, pp. 367, 368.

Auszug aus den *P. Z. S.*, ii, 1832, pp. 6, 7, *q. v.*

1837. ANON. Lesson's Werke über die Colibri. < *Oken's Isis*, Bd. xxx, 1837, p. 94.

1837. CHAMBERS, R. [On the Habits and Geographical Distribution of Humming-Birds.] < *P. Z. S.*, v, 1837, p. 37.

Merely a note of a paper read.

1837. CHAMBERS, R. Observations on the Humming-Bird. < *Charlesw. Mag. Nat. Hist.*, i, 1837, pp. 592–596, fig. 70. (Auch in: *Froriep's Notizen*, iv, No. 84, 1837, pp. 289–292.)

"These remarks are only those of an ardent admirer of nature, not of an ornithologist."

1838. GEOFFROY SAINT-HILAIRE, [ISID.] Note sur l'ostéologie des Oiseaux-Mouches, envoyée de Liége. < *Compt. Rend. de l'Acad. Sci.*, vi, 1838, pp. 880–883.

1°. Unité de plan et modifications dans les détails de l'appareil hyoïdien.—2°. Unité de plan et modifications dans les details de l'appareil sternal chez les Oiseaux-mouches, et les grands voiliers, les Frégates.

1838. GEOFFROY SAINT-HILAIRE, [ISID.] [Note sur l'Ostéologie des Oiseaux-mouches.] < *Revue Zoologique*, i, 1838, p. 99.

Extraite des *Comptes Rend. à l'Acad. Sci. Paris*, vi, 1838, pp. 880–883, *q. v.*

1838. LESSON, [R.] P. Espèces nouvelles d'oiseaux mouches. < *Revue Zoologique*, i, 1838, pp. 314, 315.

12 espèces, dont quelqu'unes récemment décrites: *Ornismya arsinœ*, *O. fanny*, *O. vesper*, *O. nuna*, *O. vestita*, *O. helianthea*, p. 314; *O. parzudhaki* (sic), *O. zemès*, *O. lumachella*, *O. rhami*, *O. senex*, *Trochilus anaïs*, p. 315.

1839. BOISSONNEAU, —. Nouvelles espèces d'Oiseaux-Mouches de Santa-Fé de Bogota < *Revue Zoologique*, ii, 1839, pp. 354-356.

Ornismya temminckii, *O. ensifera*, *O. microrhyncha*, p. 354; *O. paulinæ*, *O. heteropogon*, p. 355. Toutes les espèces ici décrites sont figurées, *Guér. Mag. de Zool.*, 1840, pll. 12-16, *q. v.*

1839. BOURCIER, J. Description de quelques espèces nouvelles d'Oiseaux-Mouches. < *Revue Zoologique*, ii, 1839, pp. 294, 295.

Ornismya costae, *O. allardi*, p. 294; *O. jourdanii*, p. 295.

1839. CHAMBERS, [R.] Ueber die Lebensart und die geographische Verbreitung der Colibri. < *Oken's Isis*, Bd. xxxii, 1839, p. 144.

P. Z. S., London, Marz 28, 1837, p. 37.

1839. LATTRE, — DE, *and* LESSON, [R. P.] Oiseaux-Mouches nouveaux ou très-rares, découverts par M. De Lattre dans son voyage en Amérique et décrits par MM. De Lattre et Lesson. < *Revue Zoologique*, ii, 1839, pp. 13-20.

Ornysmia (sic) *campylopterus*, De L., p. 14; *O. lessonii*, De L., p. 15; *O. heloisa*, Less. et De L., p. 15; *O. abeillei*, Less. et De L., p. 16; *O. henrica*, Less. et De L., *O. phœbé*, Less. et De L., p. 17; *O. De Lattrei*, Less., p. 19; *Trochilus pretrei*, Less. et De L., *T. eliza*, Less. et De L., p. 20, spp. nn.

1840. BOISSONNEAU, —. G. Oiseau-mouche. Ornismya. Lesson. [mut. mut.] < *Guér. Mag. de Zool.*, 2^e^ sér., année 1840, Oiseaux, pp. 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, pll. 12, 13, 14, 15, 16.

O. heteropogon, pl. 12; *O. paulinæ*, pl. 13; *O. temminckii*, pl. 14; *O. ensifera*, pl. 15; *O. microrhyncha*, pl. 16. Toutes les espèces déjà décrites, *Rev. Zool.*, 1839, pp. 354, 355, *q. v.*

1840. BOURCIER, J. Descriptions et figures de trois espèces nouvelles d'Oiseau-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, iii, 1840, pp. 225-228, 5 pll.

Not seen—title from C. & E. *Bibl.*

1840. BOURCIER, [J.] Oiseau-Mouche nouveau [Ornismya heliordor]. < *Revue Zoologique*, iii, 1840, p. 275.

1840. FRASER, L. [Characters of new Species of Humming-birds.] < *P. Z. S.*, viii, 1840, pp. 14-19.

Trochilus exortis, p. 14; *T. cupreoventris*, *T. uropygialis*, *T. coruscus*, p. 15; *T. brachyrhynchus*, *T. derbianus*, *T. aureogaster*, Lodd. MSS., p. 16; *T. fuscicaudatus*, *T. cyanopterus*, Lodd. MSS., *T. gibsoni* Lodd. MSS., p. 17; *T. angustipennis*, *T. parvirostris*, *T. flavicaudatus*, *T. melanogenys*, *T. tyrianthinus*, Lodd. MSS., p. 18.

1840. FRASER, L. [Characters of new Species of Trochilidæ.] < *Annals of Nat. Hist.*, vi, 1840, pp. 151-155.

From *P. Z. S.*, Feb. 11, 1840, pp. 14-19, *q. v.*

1840. LESSON, [R. P.] Oiseaux-mouches rares ou nouveaux, communiqués par MM. Longuemare et Parzudaki, faisant partie du t. IV inédit de l'histoire naturelle des Oiseaux-mouches de M. Lesson. < *Revue Zoologique*, iii, 1840, pp. 71-74.

13 spp.—*Ornismya pouchetti*, *O. sylphia*, *Campylopterus rufus*, spp. nn. ?

1841. BOURCIER, J. Description de l'adulte de l'Ornysmia Bonapartei. < *Revue Zoologique*, iv, 1841, p. 177.

1841. LONGUEMARE, G. DE. Oiseau-mouche nouveau [Ornismya Clarisse]. < *Revue Zoologique*, iv, 1841, p. 306.

Fig. *Guér. Mag. de Zool.*, 1842, pl. 26.

1842. BOURCIER, J. Descriptions de quelques espèces nouvelles d'Oiseaux-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, v, 1842, pp. 307-310, 4 pll.

Pas vues moi-même—le titre tiré de la *Bibl.* de Carus et Engelmann.

1842. BOURCIER, J. Descriptions de quelques espèces nouvelles d'Oiseaux-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, v, 1842, pp. 344, 345, 3 pll.

Pas vues moi-même—le titre tiré de la *Bibl.* de Carus et Engelmann.

1842. Bourcier, J. Description de trois espèces nouvelles d'Oiseaux-mouches. < *Revue Zoologique*, v, 1842, pp. 373, 374.
Ornismya alinæ, O. julie, O. mulsant, p. 373.

1842. Dubus de Ghisignies, V. B. Diagnoses spécifiques de trois espèces nouvelles d'Oiseaux-Mouches de la Colombie. < *Bull. Acad. Bruxelles*, ix, i, 1842, pp. 524–526.
Pas vues moi-même—le titre est tiré Carus et Engelmann.

1842. Longuemare, G. de. G. Oiseau-mouche. Ornismia. Cuvier. O. M. Clarisse. O. Clarisse. De Longuemare. < *Guér. Mag. de Zool.*, 2e sér., année 1839, Oiseaux, pp. 1, 2, pl. 26.
Descr. orig. *Rev. Zool.*, 1841, p. 306.

1843. Bourcier, [J.] Description de deux nouvelles espèces d'Oiseaux-Mouches de Colombie. < *Revue Zoologique*, vi, 1843, p. 2.
Ornismya colombica, O. poortmani.

1843. Bourcier, [J.] Oiseaux Mouches nouveaux ou mal connus. < *Revue Zoologique*, vi, 1843, pp. 70–73.
Trochilus prunellei, p. 70; *T. cupripennis, T. anthophilus*, p. 71; *T. guimeti, T. guerini, T. barroti*, p. 72.

1843. Bourcier, J. Oiseaux-mouches nouveaux. < *Revue Zoologique*, vi, 1843, pp. 99–104.
Trochilus prevostii, p. 99; *T. cyanifrons, T. goudoti*, p. 100; *T. chrysogaster, T. cyanotus, T. geoffroyi*, p. 101; *T. leadbeateri*, p. 102; *T. fallax, T. riefferi, T. viridigaster*, p. 103.

1843. Bourcier, J. Descriptions de quelques espèces nouvelles d'Oiseaux-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, vi, 1843, pp. 36–49, 6 pll.
Pas vues moi-même—le titre tiré de Carus et Engelmann.

1843. Bourcier, J., *and* Mulsant, E. Descriptions et figures de plusieurs espèces nouvelles d'Oiseaux-mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, vi, 1843, pp. 36–49.
Pas vues moi-même—le titre ci-dessus tiré du *Roy. Soc. Cat.*

1843. Lattre, [A.] de. Description d'un Oiseau-Mouche nouveau, Ornismya Helenae. < *Revue Zoologique*, vi, 1843, p. 133.
L'Écho du monde savant.

1843. Loddiges, G. [On some Species of Humming Birds.] < *P. Z. S.*, xi, 1843, p. 122.
Brief but pointed rectification of synonymy of 9 spp. of *Ornismya*.

1845. Cabot, S., Jr. [Remarks on exhibition of Ornismia (sic) canivetii.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1845, p. 55.

1845. Cabot, S., Jr. [Trochilus yucatanensis, sp. n.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1845, pp. 74, 75.

1845. G[uérin-]M[éneville, F. E.] [Note sur les] Descriptions et figures de plusieurs espèces nouvelles d'Oiseaux-mouches, par MM. J. Bourcier et E. Mulsant [Ann. des Sci., vi, 1843]. < *Revue Zoologique*, viii, 1845, pp. 343, 344.

1845. Parzudaki, [E.] Nouvelle espèce d'oiseau mouche [Ornysmia (sic) isaacsonii]. < *Revue Zoologique*, viii, 1845, p. 95.

1845. Parzudaki, [E.] Nouvelle espèce d'Oiseau-Mouche [Ornysmia (sic) lindenii]. < *Revue Zoologique*, viii, 1845, p. 253.

1846. Bourcier, J. Description de nouvelles espèces de Trochilidées. < *Revue Zoologique*, ix, 1846, pp. 312–314.
Trochilus addæ, p. 312; *T. turnerii, T. lumachellus*, p. 313.

1846. Bourcier, J. Description de vingt espèces d'Oiseaux-Mouches. < *Revue Zoologique*, ix, 1846, pp. 314–316, pll. 3, 4.
Tel est le titre d'un mémoire que cet ornithologiste et M. Mulsant ont inséré dans les *Ann. Soc. Roy. d'Agr. de Lyon.* Ici se trouvent seulement les descriptions de deux espèces—*T. conversii*, p. 314, pl. 3; *T. victoriæ*, p. 315, pl. 4—suivies d'un liste des autres.

1846. Bourcier, J., *and* Mulsant, E. Descriptions de vingt espèces nouvelles d'Oiseaux-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, ix, 1846, pp. 313–332, 3 pll.

Not seen—title from E. & C.

1846. Gould, J. [Descriptions of three New Species of the Family of Trochilidæ.] < *P. Z. S.*, xiv, 1846, pp. 44, 45.

Trochilus coruscans, p. 44; *T. flabelliferus*, *T. strophianus*, p. 45.

1846. Gould, J. On twenty [*i. e.*, seventeen] New Species of Trochilidæ or Humming Birds. < *P. Z. S.*, xiv, 1846, pp. 85–90.

T. pyra, *T. smaragdinus*, p. 85; *T. gracilis*, *T.* (*ocreatus*, g. n.) *rufocaligatus*, *T. ligonicaudus*, p. 86; *T. cupricauda*, *T. æneocauda*, *T. violifer*, p. 87; *T. cyanopectus*, *T. aurescens*, *T. fulviventris*, p. 88; *T. nigrofasciata*, *T. ruficeps*, *T. inornata*, *T. regulus*, p. 89; *T. hypoleucus*, *T. hispidus*, p. 90: cf. *tom. cit.*, pp. 44, 45, for the three others.

1846. Gould, J. [On three new species of Trochilidæ.] < *Ann. Mag. Nat. Hist.*, xviii, 1846, pp. 129, 130.

From *P. Z. S.*, May 12, 1846, pp. 44, 45, *q. v.*

1846. Gould, J. On twenty [*i. e.*, seventeen] new species of Trochilidæ or Humming Birds. < *Ann. Mag. Nat. Hist.*, xviii, 1846, pp. 419–425.

From *P. Z. S.*, Sept. 22, 1846, pp. 85–90, *q. v.*

1846. Gulliver, G. [Note on the Size of the Blood-Corpuscles of Birds, with Measurements by Dr. Davy of the Blood-Corpuscles of some Fishes and of a Humming-Bird.] < *P. Z. S.*, 1846, pp. 26–28.

Corpuscles of Hummer 1-2666th × 1-4000th of an inch; long diameter of nucleus very nearly 1-4000th. Temperature about 105°.

1846. Lattre, A. de, *and* Bourcier, J. Description de quinze espèces nouvelles de Trochilidées, faisant partie des collections rapportées par M. Ad. De Lattre, dont les précédentes excursions ont déjà enrichi plusieurs branches de l'histoire naturelle, et provenent de l'intérieur du Pérou, des républiques de l'Équateur, de la Nouvelle-Grenade et de l'isthme de Panama. < *Revue Zoologique*, ix, 1846, pp. 305–312.

Trochilus chimborazo, *T. wilsoni*, p. 305; *T. mosquera*, *T. derbyi*, p. 306; *T. grayi*, *T. lutetiæ*, p. 307; *T. edward*, *T. williami*, p. 308; *T. herrani*, *T. saul*, p. 309; *T. cuvierii*, *T. fannyi*, p. 310; *T. saucerottei*. *T. labrador*, *T. mocoa*, p. 311.

1847. Bourcier, J. Description de quinze espèces de Trochilidées du cabinet de M. Loddiges. < *P. Z. S.*, xv, 1847, pp. 42–47.

T. mirabilis, *T. aquila*, p. 42; *T. millerii*, *T. schreibersii*, *T. matthewsii*, p. 43; *T. watertonii* (all from Lodd. MSS.), *T. evelynæ*, p. 44; *T. johannæ*, *T. conradii*, *T. yarrelli*, p. 45; *T. spencei*, *T. ruckeri*, *T. doubledayi*, p. 46; *T. mitchellii*, *T. norrisii*, p. 47, spp. nn.

1847. Bourcier, J. Description de quinze espèces de Trochilidées du cabinet de M. Loddiges. < *Revue Zoologique*, x, 1847, pp. 253–261.

Extraite des *Proc. Soc. Zool. de Londres*, 1847, pp. 42–47, *q. v.*

1847. Bourcier, J. Description de deux espèces nouvelles de Trochilidées. < *P. Z. S.*, xv, 1847, p. 48.

Trochilus caroli, *T. georginæ*.

1847. Bourcier, J. Description de deux espèces nouvelles de Trochilidées. < *Revue Zoologique*, x, 1847, pp. 260, 261.

Extraite des *Proc. Soc. Zool. Londres*, 1847, p. 48, *q. v.*

1847. Bourcier, J. Description des nouvelles espèces de Trochilidées. < *Revue Zoologique*, x, 1847, pp. 401, 402.

Extraite des *Ann. Soc. Roy. de Lyon*, t. x.

1847. Bourcier, J., *and* Mulsant, E. Description d'une espèce nouvelle d'Oiseau-Mouche. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, x, 1847, p. 136.

Pas vue moi-même—le titre tiré de la *Bibl.* de Car. et Englm.

1847. Bourcier, J., *and* Mulsant, E. Description de trois espèces nouvelles d'Oiseaux-Mouches. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, x, 1847, pp. 623, 624, 1 pl.

Pas vue moi-même—le titre tiré de la *Bibl.* de Car. et Englm.

1847–48. Gould, J. Drafts for an arrangement of the Trochilidæ, [&c.—the rest of the title is modified in succeeding Parts.] < *P. Z. S.*, xv, 1847, pp. 7–11, 16, 17, 30, 31, 94–96; xvi, 1848, pp. 11–14.

Synopsis of *Petasphora; P. iolata*, sp. n., p. 9; *Oreotrochilus*, g. n.; *O. leucopleurus*, *O. melanogaster*, spp. nn., p. 10, with synopsis of the genus; *T. calliope*, sp. n., p. 11. Synopsis of *Eriopus*, n. g., p. 16; *Cometes*, n. g.; *C. phaon*, sp. n., p. 31; *Metallura*, *Doryfera*, genn. nn., pp. 94, 95; *D. violifrons*, *Lophornis reginæ*, spp. nn., p. 95; *Trochilus cœruleogaster*, sp. n., p. 96. In 1848: *Helianthea eos*, g. sp. n., p. 11; *Aglaeactis caumatonotus*, *Heliangelus mavors*, genn. spp. nn., p. 12; *Thalurania viridipectus*, gen. sp. n.; *Campylopterus obscurus*, sp. n., p. 13; *Trochilus caligatus*, sp. n.; *Oxypogon*, g. n., p. 14.

1847–48. Gould, J. Drafts for a new arrangement of the Trochilidæ [etc., mut. mut.]. < *Ann. Mag. Nat. Hist.*, xix, 1847, pp. 401–405, 408, 409, 421, 422; xx, 1847, pp. 283–285; 2d ser., ii, 1848, pp. 62–66.

From *P. Z. S.*, 1847–48, *q. v.*

1848. Bourcier, J., *and* Mulsant, [E.] Descriptions de quelques nouvelles espèces d'Oiseaux-Mouches. < *Revue Zoologique*, xi, 1848, pp. 269–275.

Trochilus cephalus, p. 269; *T. castelnaudii*, p. 270; *T. pucherani*, p. 271; *T. josephinæ*, *T. devillei*, p. 272; *T. phaeton*, *T. amaryllis*, p. 273; *T. eucharis*, *T. alice*, p. 274.

1848. Gosse, P. H. Ueber das langgeschwänzte Colibri auf Jamaica. < *Fror. Notiz.*, 3 Reihe, vi, No. 121, 1848, pp. 167–169.

Nicht mir selbst zugänglich—Titel aus Carus u. Engelmann.

1849. Bourcier, J., *and* Mulsant, E. [Trochilus pichincha, n. sp.] < *Mém. Acad. Lyon*, ii, 1849, pp. 427, 428.

Pas vu moi-même. Titre tiré de C. & E.

1849. Bourcier, J., *and* Mulsant, E. Description d'une nouvelle espèce d'Oiseau-Mouche [Trochilus pichincha]. < *Rev. et Mag. de Zool.*, 2^e^ sér., i, Dec., 1849, pp. 625, 626.

Lué à *l'Acad. des Sc., etc., de Lyon*, le 17 juillet 1849.

1849. Gosse, P. H. Descriptions of two new Birds from Jamaica. < *Ann. Nat. Hist.*, 2d ser., iii, 1849, pp. 257–259.

Trochilus maria, p. 258; *Elania* (sic) *cotta*, p. 257.

1849. Gould, J. Description of Two New Species with the characters of a New Genus of Trochilidæ. < *P. Z. S.*, xvii, 1849, pp. 95, 96.

Heliodoxa (g. n., p. 95) *jacula*, p. 96; *Eriopus simplex*, p. 96.

1849–61. Gould, J. A Monograph | of | The Trochilidæ, | or | Family of Humming-Birds. | By | John Gould, F. R. S., | [etc., 8 lines.] | In Five Volumes. | Vol. I[–V]. | London: | printed by Taylor and Francis, Red Lion Court, Fleet Street. | Published by the Author, 26 Charlotte Street, Bedford Square. | [1849–]1861. | [The author reserves to himself the right of translation.] | Five vols. folio. Vol. I, title 1 l., dedication 1 l., list of plates 1 l., pp. i–cxxviii (list of subscribers, preface, introduction, etc.), with unnumbered pll. 1–41, and unpaged folios accompanying them. Vol. II, title 1 l., list of plates 1 l., with unnumbered pll. 42–116, and unpaged folios accompanying them. Vol. III, title 1 l., list of plates 1 l., with pll. 117–203, and unpaged folios accompanying them. Vol. IV, title 1 l., list of plates 1 l., with pll. 204–283, and unpaged folios accompanying them. Vol. V, title 1 l., list of plates 1 l., with pll. 284–360, and unpaged folios accompanying.

The above is the permanent title, furnished on the completion of the work, with the collation of the five vols. in which it is designed that the 25 parts in which the work was published be bound. The cover-title is a little different, as follows:—

A | Monograph | of the | Trochilidæ | or | Humming Birds. | Dedicated with permission to | Her Royal Highness, The Princess Royal of England. | By | John Gould, F. R. S., &c. | — | Part I[–XXV]. | — | Contents. | [mut. mut.] | London: | published by the author, . . . [mut. mut.] | [Price Three Guineas.] | June 1st, 1849 [–September 1st, 1861]. Part I, June 1st, 1849, 15 pll. and text. Part II, Nov. 1st, 1851, 15 pll. and text. Part III, May 1st, 1852, 15 pll. and text. Part IV, Oct, 1st, 1852, 15 pll. and text. Part V, May 1st, 1853, 15 pll. and text. Part VI, Oct. 1st, 1853, 15 pll. and text. Part VII, May 1st, 1854, 15 pll. and text. Part VIII, Oct. 1st, 1854, 15 pll. and text. Part IX, May 1st, 1855, 15 pll. and text. Part X, Sept. 1st, 1855, 15

1849–61. Gould, J.—Continued.

pll. and text. Part XI, May 1st, 1856, 15 pll. and text. Part XII, Sept. 1st, 1856, 15 pll. and text. Part XIII, May 1st, 1857, 15 pll. and text. Part XIV, Sept. 1st, 1857, 15 pll. and text. Part XV, May 1st, 1858, 15 pll. and text. Part XVI, Sept. 1st, 1858, 15 pll. and text. Part XVII, May 1st, 1859, 15 pll. and text. Part XVIII, Sept. 1st, 1859, 15 pll. (of 16 spp.) and text. Part XIX, May 1st, 1860, 15 pll. and text. Part XX, Sept. 1st, 1860, 15 pll. and text. Part XXI, May 1st, 1861, 15 pll. and text. Part XXII, July 1st, 1861, 15 pll. and text. Part XXIII, Sept 1st, 1861, 15 pll. and text. Part XXIV, Sept. 1st, 1861, 15 pll. and text. Part XXV, no pll., 5 titles for 5 vols, 1 dedication, pp. i–cxxviii, being List of Subscribers, Preface, Introduction, Explanation of Abbreviations and Lists of Generic and Specific names, with 5 ll. of Lists of Plates, one for each vol.—In all, 360 unnumbered plates, and about or exactly as many unpaged folios of text, *plus* the titles, etc., furnished with Part XXV.

The unnumbered plates and unpaged folios of text are designed to be rearranged in making up the five volumes in a systematic sequence given in the "Introduction"; this and the lists of plates being the only clue to the citation of the plates by number. Each of the vols. is dated "1861" on the permanent title-page; but each vol. consists of plates and text published in other years, the appearance of the plates having been according to no systematic arrangement of the genera and species. To preserve dates of publication of the plates, I first give a list of the species according to their appearance in the successive Parts, and then quote the Plates by their numbers in the made-up volumes, according to the sequence indicated in the Introduction.

Part I, June 1st, 1849.—Trochilus polytmus, Oreotrochilus estellæ, O. leucopleurus, O. adelæ, Phaëthornis eurynome, P. eremita, Pterophanes temminckii, Docimastes ensiferus, Spathura underwoodi, S. peruana, S. rufocaligata, Oxypogon guerini, O. lindeni, Tryphæna duponti, Augastes scutatus. (15 spp.)

Part II, Nov. 1st, 1851.—Topaza pella, T. pyra, Oreotrochilus chimborazo, O. pichincha, Eutoxeres aquila, E. condamini, Glaucis ruckeri, Calothorax helisdori, C. mulsanti, Florisuga mellivora, F. flabellifera, F. atra, Augastes lumachellus, Phaethornis griseogularis, Mellisuga minima. (15 spp.)

Part III, May 1st, 1852.—Eustephanus galeritus, Cynanthus cyanurus, C. smaragdicaudus, Grypus nævius, Selasphorus rufus, S. scintilla, S. platycercus, Eriocnemis simplex, Campylopterus rufus, C. hyperythrus, Hylocharis cyaneus, H. sapphirinus, Lophornis chalybeus, Calothorax yarrelli, Thaumatias chionurus. (15 spp.)

Part IV, Oct. 1st, 1852.—Thaumastura enicura, Cometes sparganurus, C. phaon, Ramphomicron microrhyncha, R. stanleyi, R. heteropogon, R. ruficeps, R. herrani, Phaethornis guy, P. yaruqui, P. syrmatophorus, P. hispidus, P. pygmæus, Threnetes leucurus, T. antoniæ. (15 spp.)

Part V, May 1st, 1853.—Heliotrypha viola, Petasphora anais, P. iolata, P. cyanotis, P. thalassina, P. serrirostris, P. coruscans, P. delphinæ, Heliomaster longirostris, H. constanti, H. pinicola, H. angelæ, H. mesoleucus, Chlorostilbon prasinus, Phaëthornis bourcieri. (15 spp.

Part VI, Oct. 1st, 1853.—Eupetomena hirundinacea, Clytolæma rubinea, Urosticte benjamini, Dorifera ludoviciæ, D. johannæ, Heliothrix auritus, H. auriculatus, H. barroti, Eriocnemis cupreiventris, E. mosquera, E. luciani, Schistes geoffroyi, S. albogularis, Aphantochroa cirrhochloris, Phaëthornis intermedius. (15 spp.)

Part VII, May 1st, 1854.—Lesbia amaryllis, Calothorax micrurus, Eustephanus fernandensis, E. stokesi, Gouldia langsdorffi, G. popelairi, G. conversi, Bourcieria torquata, B. fulgidigula, B. inca, Phaëthornis pretrei, P. augusti, P. anthophilus, Hypuroptila buffoni, H. cæruleogaster. (15 spp.)

Part VIII, Oct. 1st, 1854.—Diphogena (sic) iris, Selasphorus? heloisæ, Cephalepis delalandi, C. loddigesi, Heliantheа typica, H. bonapartei, Myiabeillia typica, Panoplites jardini, P. matthewsi, P. flavescens, Cæligena typica, C. purpurea, Eriocnemis lugens, Delattria henrici, Phaëthornis striigularis. (15 spp.)

Part IX, May 1st, 1855.—Heliangelus clarissæ, H. strophianus, H. amethysticollis, H. spencei, H. mavors, Patagona gigas, Thaumatias brevirostris, T. affinis, Cyanomyia quadricolor, Delattria clemenciæ, D. vividipallens, Leucippus chionogaster, Adelomyia melanogenys, A. floriceps, Glaucis dohrni. (15 spp.)

Part X, Sept. 1st, 1855.—Lophornis ornatus, L. gouldi, L. magnificus, L. regulus, L. reginæ, L. helenæ, Heliantheа eos, H. violifera, Eriocnemis aureliæ, Campylopterus delattrei, C. pampa, Gouldia lætitiæ, Phaethornis philippi, Leucochloris albicollis, Adelomyia? castaneiventris. (15 spp.)

Part XI, May 1st, 1856.—Eugenia imperatrix, Heliactin cornuta, Avocettula recurvirostris, Avocettinus eurypterus, Calypte annæ, C. helenæ, C. costæ, Rhodopis vespera, Lamprolaima rhami, Cyanomyia cyanocephala, Cœligena wilsoni, Glaucis hirsuta, Thalurania watertoni, T. glaucopis, Adelomyia inornata. (15 spp.)

Part XII, Sept. 1st, 1856.—Aglæactis cupripennis, A. pamela, Thaumatias albiventris, T. linnæi, Chrysolampis moschitus, Calothorax fanny, Eugenes fulgens, Lesbia gouldi, Campy-

1849-61. GOULD, J.—Continued.

lopterus lazulus, C. cuvieri, Urochroa bougueri, Lampornis mango, Leucippus fallax, Calliphlox amethystina, Saucerottia cyanifrons. (15 spp.)

PART XIII, May 1st, 1857.—Thaumastura elizæ, T. coræ, Lafresnaya flavicauda, L. gayi, Helianthea lutetiæ, Ionolaima schreibersi, Circe latirostris, Aglæactis castelnaui, Orthorhynchus cristatus, O. exilis, Amazilia pristina, A. cerviniventris, A. corallirostris, Chlorostibon auriceps, Thalurania wagleri. (15 spp.)

PART XIV, Sept. 1st, 1857.—Calothorax cyanopogon, C. calliope, C. rosæ, Trochilus alexandri, Eulampis jugularis, E. holosericeus, E. chlorolæmus, Campylopterus ensipennis, Coeligena prunelli, Eucephala cærulea, E. grayi, Eupherusa eximia, Klais guimeti, Phaethornis longuemarus, P. adolphi. (15 spp.)

PART XV, May 1st, 1858.—Eriocnemis derbianus, E. nigrivestis, E. isaacsoni, Trochilus colubris, Phaethornis obscura, P. viridicaudata, Lampornis gramineus, L. porphyrurus, L. veraguensis, L. aurulentus, L. prevosti, Cometes? glyceria, Heliopædica melanotis, Erythronota edwardi, E. niveiventris. (15 spp.)

PART XVI, Sept. 1st, 1858.—Phaiolaima rubinoides, Heliodoxa jacula, Discura longicauda, Phaëthornis superciliosus, P. cephalus, Sternoclyta cyanicpectus, Thalurania furcata, T. columbica, T. venusta, T. eriphile, T. verticeps, Microchera albocoronata, Chrysobronchus virescens, C. virdicaudus, Chrysuronia eliciæ. (15 spp.)

PART XVII, May 1st, 1859.—Metallura cupreicauda, M. æneicauda, M. tyrianthina, M. smaragdinicollis, M. williami, Eriocnemis vestitus, E. alinæ, Heliothrix phaïnolæma, H. purpureiceps, Campylopterus villaviscencis, Chrysuronia œnone, C. humboldti, C. josephinæ, Sporadinus elegans, Phaëthornis amaura. (15 spp.)

PART XVIII, Sept. 1st, 1859.—Ionolaïma frontalis, Bourcieria conradi, Juliamyia typica, Damophila amabilis, Spathura melananthera, Oreotrochilus melanogaster, Thaumatias leucogaster, T. chionopectus, T. milleri, Amazilia Dumerili, A. leucophæa, A. cyanura, Hylocharis lactea, Phaëthornis oseryi, P. nigricinctus, P. episcopus. (16 spp. on 15 pll.)

PART XIX, May 1st, 1860.—Spathura cissiura, Calothorax pulchra, Heliotrypha parzudaki, Chlorostilbon caniveti, Phaiolaima aequatorialis, Sapphironia goudoti, S. cæruleogularis, Campylopterus latipennis, C. obscurus, Chrysuronia chrysura, Thaumatias caudidus, Erythronota antiqua, Calliphlox mitchelli, Amazilia riefferi, A. devillei. (15 spp.)

PART XX, Sept. 1st, 1860.—Lophornis verreauxi, Lesbia eucharis, L. nuna, L. gracilis, Heliodoxa leadbeateri, H. otero, Cyanomyia franciæ, C. violiceps, C. cyanocollis, Chlorostilbon aliciæ, C. poortmani, C. atala, Amazilia viridigaster, Circe doubledayi, Sporadinus riccordi. (15 spp.)

PART XXI, May 1st, 1861.—Clytolæma? aurescens, Heliopædica xantusi, Thalurania refulgens, T. nigrofasciata, T. tschudii, Oreopyra leucaspis, Calothorax evelynæ, C. jourdani, Aphantochroa gularis, Eriocnemis squamata, E. godini, Panterpe insignis, Lampornis viridis, Heliodoxa jamesoni, Chlorostilbon angustipennis. (15 spp.)

PART XXII, July 1st, 1861.—Chlorostilbon phaëthon, C. osberti, Phæoptila sordida, Thaumatias viridiceps, Amazilia beryllina, A. ocai, Hypuroptila urochrysia, Cometis? caroli, Erythronota sophiæ, Eucephala cæruleo-lavata, E. smaragdo-cærulea, E. chlorocephala, E. hypocyanea, Grypus spixi, Glaucis melanura. (15 spp.)

PART XXIII, Sept. 1st, 1861.—Loddigesia mirabilis, Schistes personatus, Eriocnemis d'orbignyi, Thaumatias nitidifrons, Amazilia alticola, A. yucatanensis, A. castaneiventris, Ramphomicron vulcani, Diphlogæna aurora, Selasphorus floresii, Campylopterus roberti, Metallura primolinus, Phaethornis fraterculus, P. zonura, Erythronota saucerottei. (15 spp.)

PART XXIV, Sept. 1st, 1861.—Lophornis dellattrei, Threnetes cervinicauda, Glaucis fraseri, G. affinis, G. mazeppa, G. lanceolota, Erythronota feliciæ, E.? elegans, Calothorax decoratus, Lamphornis virginalis, Adelomyia maculata, Orthorhynchus ornatus, Smaragdochrysis iridescens, Sporadinus maugæi, Phlogophilus hemileucurus. (15 spp.)

PART XXV, Sept. 1st, 1861.—No plates.

(Above names, copied as printed on covers, may not be literally the same as engraved on each plate.—To the 361 spp. figured in these parts, others are added in Part XXV, without plates; these are given in the systematic enumeration beyond.)

The sytematic enumeration of the species by plates, according to the make-up of the five volumes, is as follows (the asterisk indicates Gould's genera and species, whether here new or not; a page given instead of a plate signifies that the species is an unfigured one published in Part XXV, 1861):—

VOL. I., with the paged letter-press, &c., and pll. 1-41.—Grypus nævius, pl. 1; spixi, 2; Eutoxeres aquila, 3; condaminei. 4; Glaucis hirsuta, 5; mazeppa, 6; affinis, 7; *lanceolata, 8; *melanura, 9; dohrni, 10; ruckeri, 11; *fraseri, 12; *Threnetes leucurus, 13; *cervinicauda, 14; antoniæ, 15; Phaëthornis eurynome, 16; malaris, 17; consobrina (p. xl); *fratercula, 18; longirostris, 19; *syrmatophora, 20; *boliviana (p. xl); philippi, 21; *hispida, 22; oseryi, 23; anthophila, 24; bourcieri, 25; guyi, 26; emiliæ (p. xli); yaruqui, 27; superciliosa, 28; augusti, 29; squalida [=intermedius on pl.], 30; Pygmornis longuemari [=Phaethornis longuemarus of pl.], 1849-61. **Gould, J.**—Continued.

31; amaura [=Phaethornis on pl.], 32; aspasiæ [=Phaëth. *viridicaudata on pl.], 33; *zonura [=Phaëthornis on pl.], 34; adolphi [=Phaëth. on pl.], 35; *griseogularis [=Phaethornis on pl.], 36; *striigularis [=Phaethornis on pl.], 37; idaliæ [=Phaethornis *obscura on pl.], 38; nigricincta [=Phaeth. on pl.], 39, f. 1; *episcopus [=Phaethornis on pl.], 39, f. 2; rufiventris (p. xliv); *eremita [=Phaeth. on pl.], 40; pygmæus [=Phaethornis on pl.], 41.

Vol. II, pll. 42–116.—*Eupetomena macrura [E. hirundinacea on pl.], 42; Sphenoproctus [=Campylopterus on pl.] pampa, 43; curvipennis (p. xlv); Campylopterus lazulus, 44; hemileucurus [=delattrei on pl.], 45; ensipennis, 46; splendens, 47, up. fig.; villavicencis, 47, low. fig.; latipennis, 48; *æquatorialis (p. xlvii); *obscurus, 49; rufus, 50; hyperythrus, 51; *Phaeochroa [Campylopterus on pl.] cuvieri, 52; roberti, 53; *Aphantochroa cirrhochloris, 54; *gularis, 55; Dolerisca [=Leucippus on pl.] fallax, 56; *cervina (p. xlviii); *Urochroa bougueri, 57; *Sternoclyta cyanecipectus, 58; *Eugenes fulgens, 59; Coeligena [=Delattria on pl.] clemenciæ, 60; Lamprolaema rhami, 61; Delattria henrici, 62; viridipallens, 63; *Heliopædica melanotis, 64; xantusi, 65; Topaza pella, 66; pyra, 67; *Oreotrochilus chimborazo, 68; pichincha, 69; estellæ, 70; *leucopleurus, 71; *melanogaster, 72; adelae, 73; Lampornis mango, 74; *iridescens (p. liii); prevosti, 75; *veraguensis, 76; gramineus, 77; viridis, 78; aurulentus, 79; virginalis, 80; porphyrurus, 81; Eulampis jugularis, 82; holosericeus, 83; chlorolæmus, 84; *longirostris (p. lv); Lafresnaya flavicaudata, 85; gayi, 86; saulæ (p. lv); *Doryfera johannæ, 87; ludoviciæ, 88; *rectirostris (p. lvi); Chalybura [=Hypuroptila on pl.], 89; *urochrysia [=Hypuroptila on pl.], 90; *cæruleogastra [=Hypuroptila on pl.], 91; *isauræ (p. lvii); *Iolæma frontalis, 92; schreibersi, 93; *Heliodoxa *jacula, 94; jamesoni, 95; Leadbeatera otero, 96; *splendens (p. lviii); grata, 97; Aithurus [=Trochilus on pl.] polytmus, 98; *Thalurania glaucopis, 99; watertoni, 100; furcata, 101; *furcatoides (p. lx); forficata (p. lx); *refulgens, 102; *tschudii, 103; *nigrofasciata, 104; *venusta, 105; columbica, 106; *verticeps, 107; fanniæ (p. lx); eriphyle, 108; wagleri, 109; *Panoplites jardini, 110; flavescens, 111; matthewsi, 112; Florisuga mellivora, 113; *flabellifera, 114; *atra, 115; *Microchera *albocoronata, 116.

Vol. III, pll, 117–203.—Lophornis ornatus, 117; gouldi, 118; magnificus, 119; *regulus, 120; *lophotes (p. lxiii); delattrei, 121; *reginæ, 122; helenæ, 123; Polemistria [=Lophornis on pl.] chalybea, 124; verreauxi [=Lophornis on pl.], 126; Discura longicauda, 126; Prymnacantha [=Gouldia on pl.] popelairi, 127; Gouldia langsdorffi, 128; conversi, 129; letitiæ, 130; Trochilus colubris, 131; alexandri, 132; Mellisuga minima, 133; *Calypte costæ, 134; annæ, 135; helenae, 136; Selasphorus rufus, 137; *scintilla, 138; floresii, 139; platycercus, 140; Atthis heloisæ, 141; *Stellula [Calothorax on pl.] *calliope, 142; Calothorax cyanopogon, 143; *pulcher, 144; *Acestrura [=Calothorax on pl.] mulsanti, 145; *decorata [=Calothorax on pl.], 146; heliodori [=Calothorax on pl.], 147; *micrura [=Calothorax on pl.], 148; Chætocercus [=Calothorax on pl.] rosæ, 149; jourdani [=Calothorax on pl.], 150; Myrtis [=Calothorax on pl.] fanniæ, 151; yarrelli [=Calothorax on pl.], 152; Thaumastura coræ, 153; Rhodopis vespera, 154; Doricha elizæ, 155; evelynæ, 156; enicura, 157; *Tryphaena duponti, 158; Calliphlox amethystina, 159; amethystoides (p. lxx); mitchelli, 160; *Loddigesia *mirabilis, 161; *Spathura underwoodi, 162; melananthera, 163; *peruana, 164; *rufocaligata, 165; *cissiura, 166; Lesbia gouldi, 167; *gracilis, 168; nuna, 169; amaryllis, 170; eucharis, 171; Cynanthus cyanurus, 172; *caelestis (p. lxxii); mocoa [=*smaragdicaudus on pl.], 173; *Cometes sparganurus, 174; *phaon, 175; glyceria, 176; caroli, 177; *Pterophanes temminckii, 178; *Aglæactis cupripennis, 179; aequatorialis (p. lxxiv); *parvula (p. lxxiv); *caumatonotus (p. lxxiv); castelnaudi, 180; pamelæ, 181; *Oxypogon guerini, 182; lindeni, 183; Ramphomicron heteropogon, 184; stanleyi, 185; *vulcani, 186; herrani, 187; *ruficeps, 188; microrhynchum, 189; *Urosticte benjamini, 190; *Metallura *cupreicauda, 191; *aeneicauda, 192; williami, 193; primolii, 194; tyrianthina, 195; *quitensis (p. lxxvii); smaragdinicollis, 196; Adelomyia inornata, 197; melanogenys, 198; *maculata, 199; Avocettinus eurypterus, 200; Avocettula recurvirostris, 201; Anthocephala [=Adelomyia on pl.] floriceps, 202; castaneiventris [=Adelomyia on pl.], 203.

Vol. IV, pll. 204–283.—Chrysolampis moschitus, 204; Orthorhynchus cristatus, 205; *ornatus, 206; exilis, 207; Cephalepis delalandi, 208; *loddigesi, 209; Klais guimeti, 210; Myiabeillia typica, 211; Heliactin cornuta, 212; Heliothrix aurita, 213; auriculata, 214; *phainolæma, 215; barroti [=purpureiceps on pl.], 216; *violifrons [=barroti on pl.], 217; Schistes geoffroyi, 218; *personata, 219; *albigularis, 220; *Augastes scutatus, 221; lumachellus, 222; Petasophora serrirostris, 223; anais, 224; *iolata, 225; *coruscans, 226; thalassina, 227; cyanotis, 228; adelphinae, 229; Polytmus [=Chrysobronchus on pl.] virescens, 230; viridissimus [=Chrysobronchus viridicaudus on pl.], 231; Patagona gigas, 232; *Docimastes ensiferus, 233; *Eugenia imperatrix, 234; *Helianthea typica, 235; bonapartei, 236; *eos, 237; lutetiæ, 238; *violifera, 239; *Heliotrypha parzudaki, 240; *viola, 241; *Heliangelus clarissæ, 242; *strophianus, 243; spencei, 244; amethysticollis, 245; *mavors, 246; *Diphlogenia *iris, 247; *aurora, 248; *Clytolæma rubinea, 249; *aurescens, 250; Bourciera torquata, 251; *fulgidigula, 252; insectivora (p. xc); conradi, 253; *inca, 254; Lampropygia coeligena [Coeligena typica on pl.], 255; *boliviana (p. xc); purpurea [Coeligena on pl.], 256; prunellei [Coeligena on pl.], 257; wilsoni, 258; Heliomaster longirostris, 259; stuartæ (p. xci); sclateri (p. xcii); *pallidiceps (p. xcii);

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constanti, 260; leocadiæ [*pinicola on pl.], 261; Lepidolarynx [Heliomaster on pl.] mesoleucus, 262; Calliperidia [Heliomaster on pl.] angelæ, 263; *Oreopyra *leucaspis, 264; Eustephanus galeritus, 265; stokesi, 266; fernandensis, 267; Phæolæma rubinoïdes, 268; *æquatorialis, 269; Eriocnemis cupreiventris, 270 and 271 [latter being E. *simplex]; isaacsoni, 272; luciani, 273; mosquera, 274; vestita, 275; nigrivestis, 276; godini, 277; d'orbignyi, 278; derbiana, 279; alinæ, 280; *squamata, 281; *lugens, 282; aureliae, 283.

VOL. V, pll. 284–360.—Cyanomyia quadricolor, 284; *violiceps, 285; cyanocephala, 286; *guatemalensis (p. xcvi); franciæ, 287; *cyanicollis, 288; *Hemistilbon *ocai, 289; norrisi (p. xcvii); Leucippus chionogaster, 290; Leucochloris albicollis, 291; Thaumatias candidus, 292; *chionopectus, 293; leucogaster, 294; *viridiceps, 295; milleri, 296; nitidifrons, 297; *caeruleiceps (p. xcviii); brevirostris, 298; *affinis, 299; *chionurus, 300; albiventris, 301; linnæi, 302; *fluviatilis (p. xcix); *apicalis (p. xcix); *maculicaudus (p. xcix); Amazilia pristina, 303; *alticola 304; dumerili, 305; leucophæa, 306; Pyrrhophæna cinnamomea [=Amazilia corallirostris on pl.], 307; yucatanensis [=Amazilia on pl.], 308; *cerviniventris [=Amazilia on pl.], 309; *castaneiventris [=Amazilia on pl.], 310; riefferi [=Amazilia on pl.], 311; beryllina [=Amazilia on pl.], 312; devillei [=Amazilia on pl.], 313; viridigaster [=Amazilia on pl.], 314; iodura (p. ci); *cyanura [=Amazilia on pl.], 315; Erythronota antiqua, 316; feliciæ, 317; edwardi, 318; *nigriventris, 319; *elegans, 320; Saucerottia typica [Erythronota saucerottei on pl.], 321; sophiæ [=Erythronota on pl.], 322; warszewiczi (p. ciii); Hemithylaca [=Saucerottia on pl.] cyanifrons, 323; *Eupherusa eximia, 324; Chrysuronia œnone, 325; josephinae, 326; neera (p. civ); *cæruleicapilla (p. civ); humboldti, 327; eliciae, 328; chrysura, 329; Eucephala grayi, 330; *smaragdo-cærulea, 331; chlorocephala, 332; *cæruleo-lavata, 333; *scapulata (p. cv); *hypocyanea, 334; cærulea, 335; cyanogenys (p. cv); Panterpe insignis, 336; Juliamyia typica, 337; feliciana (p. cvi); *Circe latirostris, 338; doubledayi, 339; *Phæoptila *sordida, 340; *zonura (p. cvii); Damophila *amabilis, 341; Hylocharis sapphirina, 342; lactea, 343; cyanea, 344; Sapphironia goudoti, 345; *cæruleigularis, 346; Sporadinus elegans, 347; ricordi, 348; maugæi, 349; Chlorolampis [Chlorostilbon on pl.] *auriceps, 350; caniveti [Chlorostilbon on pl.], 351; osberti [Chlorostilbon on pl.], 352; salvini (p. cix); *Chlorostilbon augustipennis, 353; haeberlini (p. cx); phaëthon, 354; aureiventris (p. cx); prasinus, 355; *igneus (p. cxi); atala, 356; daphne (p. cxi); *peruanus (p. cxi); *napensis (p. cxi); *brevicaudatus (p. cxi); chrysogaster (p. cxi); assimilis (p. cxii); nitens (p. cxii); Panychlora [Chlorostilbon on pl.] alicæ, 357; euchloris (p. cxii); stenura (p. cxiii); poortmani [Chlorostilbon on pl.], 358; *Smaragdochrysis *iridescens, 359; *Phlogophilus *hemileucurus, 360.

(*Note.*—The above list being drawn up by turning the pages of the Introduction, the asterisk may be misplaced in some instances, if the author has omitted to place his name after his own genera and species, or has placed it after any names for which he is the authority only in as far as the combination of the generic with the specific term is concerned. I have preferred to take this list rather than that of the plates alone, as this represents the final views of the author, and gives many species not figured; the species here catalogued being 416 in number, while the plates number 360. In many cases the generic, and sometimes the specific, names are here different from those printed in the body of the work and engraved on the plates; but all these discrepancies I have taken due note of in the brackets.)

1849. [JARDINE, W.] Oreotrochilus jamesonii [n. sp.], Jardine. October, 1849. < *Jard. Contrib. Orn.*, 1849, p. 67, pl. xliii.

See also note, *Contrib.* for 1850, p. 27.

1849. PARZUDAKI, [E.] Description et figure d'une [récemment] nouvelle espèce d'Oiseau-Mouche de la République de Venezuela. < *Rev. et Mag. de Zool.*, i, 1849, pp. 273, 274, pl. 8.

Ornysmia (sic) *lindenii*, Parz., *R. Z.*, 1845, p. 253.

1849. SALLÉ, A. [Description d'une nouvelle espèce d'Oiseau-Mouche (Ornismia (sic) catharinæ).] < *Rev. et Mag. de Zool.*, i, 1849, p. 498.

1850. BONAPARTE, C. L. Note sur les Trochilidés. < *Compt. Rend. de l'Acad. Sci. Paris*, xxx, 1850, pp. 379–383.

Lafresnaya, *Delattria*, *Bourciera*, *Saucerottia*, *Loddigiornis*, *Gouldia*, sont des genres nouveaux ou récemment décrits (1849).

1850. BONAPARTE, C. L. Note sur les Trochilidés. < *Rev. et Mag. de Zool.*, ii, 1850, pp. 243–245.

Extraite des *Comptes Rendus de l'Acad. des Sc. de Paris*, séance du 1er avril 1850, *q. v.*

1850. GOULD. J. On six new species of Humming Birds. < *P. Z. S.*, xviii, 1850, pp. 162–164.

Trochilus scintilla, *T. chionura*, p. 162; *T. venusta*, *T. coeruleogularis*, *T. castaneoventris*, p. 163; *T. niveoventer*, p. 164.

1850. [Jardine, W.] Trochilus allardi, Bourc. < *Jard. Contrib. Orn.*, 1850, p. 81, and p. 151, pl. lv.

1850. [Jardine, W.] Ornithology of Quito. < *Jard. Contrib. Orn.*, 1850, pp. 1–3.
The piece consists of notices of 8 spp. of *Trochilidæ*.

1851. Anon. Ueber die Verbreitung der Colibris. < *Fror. Tagsb.*, no. 339 (Zool. Bd., ii), 1851, p. 120.
Not seen—title from Carus and Engelmann.

1851. Bourcier, J. Note sur onze espèces nouvelles de Trochilidées. < *Compt. Rend. de l'Acad. Sci.*, xxxii, 1851, pp. 186–188.
Trochilus bougueri, *T. godini*, p. 186; *TT. condamini*, *yaruqui*, *pichincha*, *stanleyi*, *benjamini*, *jardini*, *villaviscensis*, *jamesoni*, *duchassaini*, p. 187, recueillies par lui en 1849 et '50 dans la République de l'Équateur.—Note sur ce sujet par M. Isid. Geoffroy St.-Hilaire, p. 188.

1851. Bourcier, J. Note sur onze espèces nouvelles de Trochilidées. < *Rev. et Mag. de Zool.*, iii, Feb., 1851, pp. 96–98.
Extraite des *Comptes Rendus de l'Acad. des Sc. de Paris*—séance du 10 février, 1851, *q. v.*

1851. Bourcier, J., *and* Mulsant, E. Description d'une nouvelle espèce d'Oiseau-Mouche [Trochilus stanleyi]. < *Ann. Sc. Phy. Soc. d'Agric. de Lyon*, nouv. sér., iii, 1851, pp. 199–203. (Aussi séparément, 8vo, pp. 5.)
Not seen—title from Carus and Engelmann.

1851. Geoffroy Saint-Hilaire, Isid. [Note sur les onze espèces nouvelles de Trochilidées de M. Bourcier.] < *Compt. Rend. de l'Acad. Sci.*, xxxii, 1851, p. 188.

1851. Gould, J. On some new species of Trochilidæ. < *P. Z. S.*, xix, 1851, pp. 115, 116.
Trochilus (—?) *amabilis*, *Phaëthornis griseogularis*, p. 115.

1851. Gould, J. On six new species of Humming Birds. < *Ann. Mag. Nat. Hist.*, 2d ser., viii, 1851, pp. 341–343.
From *P. Z. S.*, June 25, 1850, pp. 162–164, *q. v.*

1851. Gould, J. Description of Three New Species of Humming-Birds. < *Jard. Contrib. Orn.*, 1851, pp. 139, 140.
Phaethornis syrmatophora, p. 139; *Schistes albogularis*, *Eriopus lugens*, p. 140.

1851. [Jardine, W.] Trochilus (Thalurania) verticeps, Gould. [n. sp.] < *Jard. Contrib. Orn.*, 1851, p. 79, pl. lxxi.

1851. [Jardine, W.] Trochilus (Spathura) melananthera, Jardine. < *Jard. Contrib. Orn.*, 1851, pp. 111, 112, pl. lxxx.

1851. Jerrard, P., *and* Bailey, F. W. N. The Humming Bird Keepsake. A Book of Bird Beauty. The Birds painted among Nests and Flowers by Paul Jerrard. The Poetry by F. W. N. Bailey, written expressly for this work. London: P. Jerrard. 1851. 4to.
Not seen—title from Carus and Engelmann.

1852. Bourcier, J., *and* Mulsant, E. Description d'une nouvelle espèce d'Oiseau-Mouche. < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, nouv. ser., iv, 1852, pp. 139–144.
Not seen—title from Carus and Engelmann.

1852. Deville, E. Observations faites en Amérique sur les mœurs de différentes espèces d'Oiseaux-Mouches, suivies de quelque notes anatomiques et de mœurs sur l'Hoazin, le Caurale et la Savacou. < *Rev. et Mag. de Zool.*, iv, 1852, pp. 208–226, pl. 9.
Sur les mœurs de dix espèces du genre *Ornismyia*; sur l'*Opisthocomus cristatus* (pl. 9), l'*Eurypyga helias* et la *Cancroma cochlearia*.

1852. Gould, J. Descriptions of Three New Species of Humming Birds. < *Jard. Contrib. Orn.*, 1852, pp. 135–137.
Ramphomicron vulcani, p. 135, Bolivia; *Bourcieria inca*, p. 136, Bolivia; *Trochilus* (——?) *auriceps*, p. 137, Mexico.

1852. Gould, J. On the genus Thalurania. < *P. Z. S.*, xx, 1852, pp. 8, 9.
List of 11 spp., with their habitats; *T. refulgens*, p. 9, sp. n.

1852. Martin, W. C. L. A | General History | of | Humming-Birds, | or the | Trochilidæ: | with especial reference to the | collection of J. Gould, F. R. S., &c. | now exhibiting in the | Gardens of the Zoological Society of London. | By | W. C. L. Martin, | late one of the Scientific Officers of the Zoological | Society of London. | — | London: | H. G. Bohn, York Street, Covent Garden. | 1852. 1 vol. sm. 16mo. pp. i–vii, 1 l., pp. 1–232, frontisp. and pll. col'd, 1–3, 3*, 4–14.

I also find this work cited as "12mo., 1853"; but this may not indicate a different edition. The work seems to have been designed as a sort of continuation of, or supplement to, the Humming-birds of Jardine's *Naturalist's Library;* and it was in fact afterward made one of the vols. of that notable collection. I have handled the vol. both as a separate work and as one of the *Nat. Libr.;* the title and collation are identical, excepting that the date is carefully erased in the *Nat. Libr.* binding. When found in this connection there is absolutely nothing to show what vol. of the series it is intended for.—Omitting the unnumbered vol. called "General History of Man," it would make Vol. XLI of the *Nat. Libr.;* counting the *Gen. Hist. of Man* as one, it would be Vol. XLII; there being 40 vols. of the series without either of these two.—But the copy examined is stamped on the back "Hummingbirds, Vol. III"; going by this token, the work makes Vol. VII *bis* of the Bird Series, the two regular Humming-bird volumes being respectively Vols. VI and VII.

It is a modest treatise of much merit, as the author's name would lead us to anticipate. The arrangement of the genera is according to Bonaparte. Some 175 spp. altogether are treated, and, on the 15 (not 14) colored plates and the frontispiece are figured the following:

Frontisp., *Docimastes ensiferus.* Pl. 1, *Petasophora iolata;* 2, *Heliothrix auritus;* 3, *Campylopterus obscurus;* 3*, *Topaza pyra;* 4, *Bourciera torquata;* 5, *Aglæactis cupreipennis;* 6, *Helianthea eos;* 7, *Chrysuronia œnone;* 8, *Heliangelus mavors;* 9, *Oreotrochilus chimborazo;* 10, *Ramphomicron heteropogon;* 11, *Oxypogon lindeni;* 12, *Spathura underwoodii;* 13, *Eriopus cupreiventris;* 14, *Gouldia conversi.*

1853. Bourcier, J. Nouvelle espèce du genre Metallura [primolinus], Gould. < *Rev. et Mag. de Zool.*, v, 1853, pp. 295. 296.

1853. Gould, J. Descriptions of Five New Species of Humming Birds. < *P. Z. S.*, xxi, 1853, pp. 61, 62.

Heliantheq iris, H. aurora, Heliangelus viola, Trochilus (——?) *cyanocollis*, p. 61; *T.* (— ?) *floriceps*, p. 62.

1853. Gould, J. Observations on the Nests of Humming Birds [Trochilidæ]. < *P. Z. S.*, xxi, 1853, p. 100.

1853. Gould, J. Descriptions of Two New Species of Humming Birds from Peru. < *P. Z. S.*, xxi, 1853, p. 109.

Spathura cissiura, Calothorax micrurus.

1853. Gould, J. On some new species of Trochilidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xi, 1853, pp. 466, 467.

From *P. Z. S.*, Mar. 25, 1851, pp. 115, 116, *q. v.*

1853. Münter, W. Abwesenheit der Furcula am Skelet eines Trochilus. < *Zeitschr. gesammt. Naturwiss.*, i, 1853, p. 18.

Not seen—title from Giebel.

1853. Verreaux, J., *and* Verreaux, E. Note du genre Lophornis Ch. Bp.—Lophornis Verreauxii Bourc. < *Rev. et Mag. de Zool.*, v, 1853, p. 193, pl. 6.

1854. Bonaparte, C. L. Tableau [sic] des Oiseaux-Mouches. < *Rev. et Mag. de Zool.*, vi, Mai, 1854, pp. 248–257. (Aussi séparément, Paris, Raçon, 1854; 8vo, pp. 12.)

Conspectus Trochilorum: 80 genres, 322 espèces: "le squelette de mes études sur les Oiseaux-Mouches." Les noms seulement, sans descriptions.

The year 1854 was a sad one for the Hummers. Two deadly assaults were made upon the literature of the family, by Bonaparte in France, and by Reichenbach in Germany; with the result of making confusion worse confounded in the generic nomenclature. Both these authors opened the flood-gates, and fairly inundated the subject with numberless new names, few of which were needed, none of which were characterized with regard for proprieties, and some of which duplicated each other. What with these authors' extravagancies, and the still further loosening of the reins of judicious moderation in the hands of Mulsant in 1866 and subsequently, the Hummers were probably as badly abused as any family of birds whatever. They have been fairly overwhelmed with a mass of synonymy. There are to-day scarcely fewer genera of Hummers than species; and, if we count the different application

1854. BONAPARTE, C. L.—Continued.

of the same name by different authors and the varying orthography of names, there are actually more generic names than there are species in this family!

I regard Bonaparte's services to the science of Ornithology to have ceased in 1850. The sum total of his after contributions to the subject, to the time when death cut short his schemes, is not only a worthless but a pernicious aggregate. In his latter years, Bonaparte simply played chess with birds, with himself for king: *le roi s'amuse!* Scheme followed scheme, tableau tableau, conspectus conspectus, with perpetual changes, incessant coining of new names, often in mere sport—it was nothing but turning a kaleidoscope. It may have been fun for him, but it was death to the subject. Besides his pedantries and his pleasantries, he had two very bad habits, neither of them any better than a trick, by which he juggled other authors out of the way to make room for himself. Under a thin pretence of making due grace to his peers, he would take their names, invest them with a new significance, and place "Bp." after such names in their new association; and then bestow a new name upon the genus thus deprived of its rightful designation—killing two birds with one stone. Again, he usually took a specific name for a generic one, and to the species thus left nameless he would give a new name—scoring two for himself again. When, as sometimes happened, these two tricks fell together, he was enabled to write "Bp." four times where it should not once have appeared. Add to all this that he was utterly regardless of orthography—often wrote the same name in different ways—quoted others' names so carelessly as to make them look like new names—renamed the same thing often in mere forgetfulness—made genera in joke, for a chance for a pun, or to compliment a friend—and let the most slovenly printing pass—with all this, I say, we have a state of things that is a disgrace to himself, a scandal to science, and only to be adequately characterized by the word abominable.

The present article may stand in illustration of the justness of my censure. It is one of four in which within as few years Bonaparte disarranged the Hummers. There is his article in the *Consp. Av.* 1849; one in the *Compt. Rend.* 1850; one in the *Ann. Sc. Nat.* 1854; and the present. He calls it only "the skeleton" of his studies; we may wonder what it would be if filled out. It is a mere list of the names of 80 genera and 322 species. It is impossible for any one who has not made a special study of the Hummers to tell which are here new names and which are not. Many are here used for the first time, and many others, both of his own and of others', are used in such novel application, or are so differently spelled, that they become *de jure* new names. I give the following list, being those that have "Bp." after them:—

Myiaetina, *Doleromyia*, *Leucippus*, *Orthornis*, *Guyornis*, p. 249. *Pygmornis*, p. 250. *Leadbeatera*, *Heliomastes*, *Ornithomyia*, *Bourcieria*, p. 251. *Cœligena*, *Lafresnaya*, *Chrysobronchus*, *Heliotryppha* (sic; Gould), *Eriocnemys* (sic; Reich.), p. 252. *Ramphomicron*, *Myiabeillia*, *Adelomyia*, *Florisuga*, *Delattria*, p. 253. *Cyanomyia*, *Amazilius*, *Chrysuronia*, p. 254. *Saucerottia*, *Sporadinus*, *Thaumantias*, *Juliamyia*, p. 255. *Sapphironia*, *Avocettinus*, *Cephalepis* (sic; Lodd.), *Loddiggiornis*, *Discura*, p. 256. *Thaumastura*, *Lophorinus*, *Gouldia*, *Gouldomyia*, p. 257.

It is directly pertinent to the subject of Bonaparte's abuse of names in this family to refer to his other schemes, which are not formally citable in this part of my Bibliography.

In the *Ann. Sc. Nat.*, 4th ser., i, 1854, Bonaparte has inserted one of his perpetual conspectus, embracing *Trochilidæ*. Here he is not only at the tricks I have exposed, but commits an ultra-Napoleonic piece of fatuity: namely, citing a number of names as if Reichenbach's, which the latter never published (see Elliot, *Class. and Syn. Troch.*, 1879, p. 188). Consequently the reproach of them falls upon Bonaparte. Such are *Aline*, *Mosqueria*, *Luciania*, *Derbomyia*, etc.

Bonaparte was seldom thoughtful enough of the convenience of others to indicate whether a "Bp." name was newly proposed or not; and it is consequently not easy for any one to decide upon the original reference to be given in such cases. Thus, in his "Note sur les Trochilidés," in *Comp. Rend.* (*vide suprà*, 1850), he has a number of names; and I notice that Mr. Elliot quotes this place and date as the original reference to them. Most if not all of them, however, occur in his *Consp. Av.* of date 1849.

As the latter is a general work which does not come in this portion of my Bibliography, I will here give a list of the Bp. genera in it—being those which Gray correctly attributes to "Bp. 1849" in his *Handlist*:—

Phaëtornis (=*Phaethornis*, Sw.), p. 67; *Lafresnaya*, *Doryfera* (=*Dorifera*, Gld.), p. 68; *Colibri*, *Heliotrix* (=*Heliothryx*, Boie), p. 69; *Delattria*, *Leadbeatera*, *Heliomaster*, p. 70; *Caeligena* (ex. Less), *Leucippus*, *Bourcieria*, *Florisuga*, p. 73; *Avocettinus*, *Chrysuronia*, p. 75; *Saucerottia*, *Amazilius*, p. 77; *Thaumatias*, p. 78; *Ramphomicron*, p. 79; *Sephanoides* (ex. Less.), p. 82; *Cephalepis* (ex. Lodd.), p. 83; *Discosura*, p. 84; *Thaumastura*, p. 85; *Gouldia*, p. 86.

1854. BOURCIER, J. Nouvelle espèce du genre Hylocharis [chlorocephalus]. Boie. < *Rev. et Mag. de Zool.*, vi, 1854, pp. 457, 458.

1854. Gould, J. Description of a New Species of Humming Bird, from Quijos [Threnetes cervinicauda]. <*P. Z. S.*, 1854, xxii, p. 109.

1854. Gould, J. On the Genus Thularania. <*Ann. Mag. Nat. Hist.*, 2d ser., xiii, 1854, pp. 228, 229.

From *P. Z. S.*, Jan. 13, 1852, pp. 8, 9, *q. v.*

1854. Gould, J. On a New Species of Cometes [mossia]; a Genus of Humming-Birds. <*Rep. Brit. Assoc. Adv. Sci. for* 1853, xxiii, 1854 (*Misc. Comm.*), p. 68.

Not described here. (See *Athen.*, 24th Sept., 1853.)

1854. Reichenbach, L. Aufzählung der Colibris oder Trochilideen in ihrer wahren natürlichen Verwandtschaft, nebst Schlüssel ihrer Synonymik. <*J. f. O.*, 1853, *Extrah.*, Marz, 1854, besondere Beilage, pp. 1–24.

General remarks; Tabular view of Genera under 16 subfamilies of 4 groups; Criticism of generic names; List of Species; Synonymatic key to the same; New Species, as follows:—*Coeligena warszewizii*, *C. sagitta*, *Chlorestes maculicollis*, *C. euchloris*, p. 23; *Lesbia gorgo*, *Steganura spatuligera*, *S. remigera*, *Amazilia leucophoea*, p. 24.

I regret to perceive that either Mr. Elliot or myself is mistaken respecting the date of this paper, the former having uniformly cited the many new genera of Reichenbach's as of 1853. Gray gives them correctly, as of 1854. The paper is a special supplement to the extra number of the *J. f. O.* for 1853; but the *Extraheft* dates 1854. Moreover, Cabanis, the editor, who surely should know, gives the exact date as March, 1854. The article was presented to the seventh annual meeting of the German Ornithological Society, held at Halberstadt, July 11–14, 1853.

It is curious that Reichenbach and Bonaparte twice crossed each other's paths in their coining of many new names for the Hummers. The portions of the *Av. Syst. Nat.* of the former, and of the *Consp. Av.* of the latter, which contain the *Trochilidæ*, both date 1849. Again, in 1854, both brought forward numberless new names. In the former case I do not know with which author lies actual priority; in the latter, Reichenbach takes precedence, Bonaparte's article having appeared in May, 1854.

If the reader will refer to my remarks upon Bonaparte's article of 1854, he will be prepared for no very favorable judgment of mine respecting the present paper of Reichenbach's. Of the immense number of new generic names which the German author here inflicts upon the *Trochilidæ* it cannot be that many are either necessary or desirable; many are mere synonyms, and none whatever are characterized. Not a few, however, take precedence over those of Bonaparte. I give the following list of the names which are Reichenbach's—most of which are here new, though some were proposed by him in 1849—there being no distinction made between them.

Avocettula, p. 6; *Damophila*, *Chlorestes*, *Smaragditis*, p. 7; *Riccordia*, *Discura*, *Steganura*, *Tilmatura*, p. 8; *Chrysolampis*, *Sappho*, *Eriocnemis*, *Engyete*, *Threptria*, *Phemonoë*, *Hemistephania*, *Phaiolaima*, *Ionolaima*, *Lamprolaima*, p. 9; *Agyrtria*, *Uranomitra*, *Leucochloris*, *Chalybura*, *Cyanophaia*, *Eucephala*, *Cyanochloris*, p. 10; *Margarochrysis*, *Boissonneaua*, *Platystylopterus*, *Floresia*, *Sericotes*, *Pampa*, *Saepiopterus*, *Prognornis*, p. 11; *Mulsantia*, *Bellatrix*, *Heliactinia*, *Popelairia*, *Rhamphomicron* (ex. Bp.), *Parzudakia*, *Lamprurus*, *Anactoria*, *Diotima*, *Atthis*, *Doricha*, *Rhodopis*, *Calliperidia*, p. 12; *Myrtis*, *Archilochus*, *Lipidolarynx*, *Klais*, *Baucis*, *Telesiella*, *Praxilla*, *Petasophora*, p. 12; *Eustephanus*, *Eremita*, *Ptyonornis*, *Ametrornis*, *Thaumaste*, p. 14; *Eutoxeres*, p. 15.

1855. Anon. [Review of parts vii, viii of Gould's Trochilidæ.] <*Nat. Hist. Rev.*, ii, 1855, pp. 3–8.

1855. Gould, J. On two New Species of Humming Birds. <*P. Z. S.*, xxiii, 1855, pp. 86, 87.

Heliothrix purpureiceps, p. 87, Popayan; *H. phaïnolæma*, p. 87, Rio Napo.

1855. Gould, J. On a new Genus and Species of Trochilidæ [Eugenia imperatrix] from Ecuador. <*P. Z. S.*, xxiii, 1855, p. 192.

1855. Gould, J. Descriptions of Five New Species of Humming Birds. <*Ann. Mag. Nat. Hist.*, 2d ser., xv, 1855, pp. 146, 147.

From *P. Z. S.*, Apr. 12, 1853, pp. 61, 62, *q. v.*

1855. Gould, J. Observations on the Nests of Humming Birds. <*Ann. Mag. Nat. Hist.*, 2d ser., xv, 1855, pp. 157, 158.

From *P. Z. S.*, July 26, 1853, p. 100.

1855. Gould, J. Description of a New Species of Humming Bird, from Quijos. <*Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, pp. 278, 279.

From *P. Z. S.*, May 9, 1854, p. 109.

1855. GOULD, J. Descriptions of two new Species of Humming Birds, from Peru. < *Ann. Mag. Nat. Hist.*, 2d ser., vx, 1855, pp. 318, 319.
From *P. Z. S.*, Nov. 22, 1853, p. 109.

1855. LAWRENCE, G. N. Description of a New Species of the Humming Bird of the Genus Mellisuga Brisson [M. albo-coronata], with a note on Trochilus aquila Bourcier. < *Ann. Lyc. Nat. Hist. New York*, vi, 1855, pp. 137–142, pl. iv.

1855. REICHENBACH, L. Trochilinarum Enumeratio ex affinitate naturali reciproca prima ducta provisoria. Leipzig. J. Hofmeister. 1855. 8vo.
Not seen.

1856. ADAMS, H. G. Humming Birds described and illustrated; with an introductory sketch of their structure, plumage, habits, haunts, etc. By H. G. Adams. With 8 coloured plates. London: Groombridge. 1856. 1 vol. 8vo. pp. 104, pll. 8.
Not seen: title from Carus and Engelmann, *Bibl.* (*Young Naturalist's Library.*)

1856. BOURCIER, J. Description d'une espèce nouvellement connue d'Oiseau-mouche du genre Pygmornis [amaura] (Conspectus Trochilorum, prince Ch. Bonaparte), famille des Trochilidés, sousfam. 175 Phætorninés. < *Rev. et Mag. de Zool.*, viii, 1856, pp. 552, 553.

1856. BOURCIER, J., *and* MULSANT, E. [Trochilus idaliæ, T. aspasiæ, spp. nn.] < *Ann. Soc. Linn. de Lyon*, n. s., iii, 1856, pp. 187–189.
Pas vu moi-même—le titre est tiré de la *Bibl.* de Carus et Engelmann.

1856. GOULD, J. On two New Species of Humming Birds belonging to the genus Amazilius. < *P. Z. S.*, xxiv, 1856, pp. 150, 151.
A. cerviniventris, p. 150, Cordova; *A. castaneiventris*, p. 150, Bogotá.

1856. GOULD, J. On a new genus and species of Trochilidæ [Eugenia imperatrix] from Ecuador. < *Ann. Mag. Nat. Hist.*, 2d ser., 1856, pp. 270, 271.
From *P. Z. S.*, Nov. 13, 1855, p. 192.

1856. GOULD, J. On two new Species of Humming Birds. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 518, 519.
From *P. Z. S.*, June 12, 1855, pp. 86, 87, *q. v.*

1857. ANON. The Canadian Humming Bird [Trochilus colubris]. < *Canad. Journ.*, ii, 1857, pp. 382, 383.
Note of Gould's carrying them toward England.

1857. GOULD, J. Descriptions of Three New Species of the Genus Phaëthornis, Family Trochilidæ. < *P. Z. S.*, xxv, 1857, pp. 14, 15.
Phaëthornis viridicaudata, *P. episcopus*, *P. obscura*, p. 14.

1857. GOULD, J. On two New Species of Humming Birds belonging to the genus Amazilius. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, p. 352.
From *P. Z. S.*, June 10, 1856, pp. 150, 151, *q. v.*

1857. GOULD, J. Descriptions of Three New Species of the Genus Phaëthornis, Family Trochilidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 493, 494.
From *P. Z. S.*, Jan. 27, 1857, pp. 14, 15, *q. v.*

1858. LAWRENCE, G. N. Descriptions of Seven New Species of Humming Birds. < *Ann. Lyc. Nat. Hist. New York*, vi, 1858, pp. 258–264.
Phæthornis moorei, p. 258; *Ph. villosus*, p. 259; *Ph. atrimentalis*, *Ph. nigricinctus*, p. 260; *Glaucis affinis*, p. 261; *Campylopterus splendens*, p. 262; *Ionolaima frontalis*, p. 263.

1858. S[TIMPSON], W. Humming Bird of the U. States. < *Am. Journ. Sci.*, xxv, 1858, pp. 294, 295.
T. colubris.—From *Ann. Mag. N. H.*, 2d ser., xx, p. 520.

1859. BOURCIER, J., *and* MULSANT, E. [Lophornis verreauxi.] < *Ann. Sc. Phys. Soc. d'Agric. de Lyon*, iii, 1859, p. 364.
Not seen—title from Giebel. (Some mistake here?)

1859. GOULD, J. Descriptions of four new Species of Humming-birds from Mexico. < *Ann. Mag. Nat. Hist.*, 3d ser., iv, 1859, pp. 96–98.
Amazilia ocai, p. 96, Xalapa; *Calothorax pulchra*, *Cyanomyia violiceps*, *C.? sordida*, p. 97 Oaxaca.

1859. H[INCKS], W. A monograph of the Trochilidæ, or Humming Birds. < *Canad. Journ.*, iv, 1858, pp. 47–50.

Review of portions of Gould's work.

1859. JAMESON, W., *and* FRASER, L. Notes on some of the Humming-birds of Ecuador figured in Mr. Gould's Monograph. < *Ibis*, i, 1859, pp. 399, 400.

Brief field-notes on 9 spp.

1860. BRYANT, H. [Note on Trochilus bahamensis.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1860, p. 317.

1860. CABANIS, J., *and* HEINE, F. Museum Heineanum. . . . III. Theil, die Schrillvogel . . . Halberstadt, 1860. > Fam. Trochilidæ, pp. 1–81.

Though scarcely citable as a separate article, I notice this portion of the *Mus. Hein.* here for the many new names of Hummers it gives, as follows:—*Dolerisca*, p. 6; *Pygmornis rufiventris* (for *rufigaster* V.), p. 7; *Toxoteuches*, p. 11; *Sphenoproctus*, p. 11; *Loxopterus*, p. 13; *Orotrochilus* (for *Oreotrochilus* Gould), p. 15; *Chrysolampis reichenbachi*, p. 31; *Thalurania forficata* (for *furcatoides* Gould), p. 24; *Sporadicus*, p. 25; *Agyrtria niveipeçtus* (for *chionopectus* Gld.), p. 33; *Pyrrhophæna*, p. 35; *P. suavis*, p. 36; *Hemithylaca*, p. 37; *H. hoffmanni*, p. 38; *H. warscewiczi*, p. 38; *Uranomitra lessoni*, p. 41; *Chrysurisca*, p. 42; *Panterpe*, p. 43; *P. insignis*, p. 43; *Chlorolampis*, p. 47; *C. salvini*, p. 48; *C. smaragdina*, p. 48; *Prasitis*, p. 49; *Pauychlora*, p. 46; *P. aurata*, p. 50; *P. stenura*, p. 50; *Aïthurus*, p. 50; *Entima*, p. 51; *Sparganura*, p. 52; *Psalidoprymna*, p. 52; *Heliomaster sclateri*, p. 54; *Cephalolepis* (for *Cephallepis* Lodd.), p. 61; *Polemistria*, p. 63; *Prymnacantha*, p. 64; *Urolampra*, p. 68; *U. chloropogon*, p. 68; *Agaclyta*, p. 70; *A. aequitorialis*, p. 70; *Adelisca*, p. 72; *Anthocephala*, p. 72; *Heliotryphon* (for *Heliotrypha*), p. 74; *Streblorhamphus*, p. 76; *Opisthoprora*, p. 76; *Hypermetra*, p. 80.

The high character of this publication is too well known to require comment here. These authors offer a notable contrast to some who could be named, and who would suffer by comparison, in the great care they take for the correct and precise orthography of words according to their classical etymology. Many of the above new names, in fact, have their origin in the practice of these authors to discard altogether, or at least to emend, any name not classical in form. Commendable as is this care in the coining of new words, it is perhaps going to an extreme to reject all words, otherwise unobjectionable, which are not formed in the same manner.

1860. GOULD, J. Descriptions of twenty-two New Species of Humming-Birds. < *P. Z. S.*, xxviii, 1860, pp. 304–312.

Grypus spixi, *Glaucis melanura*, p. 304; *Phaëthornis zonura*, *Augasma smaragdineum*, p. 305; *Eucephala cœruleo-lavata*, *E. hypocyanea*, p. 306; *Erythronota? elegans*, *Thaumatias viridiceps*, *T. cœruleiceps*, p. 307; *T. nitidifrons*, *Chlorostilbon melanorhynchus*, *C. acuticaudus*, p. 308; *C. osberti*, *Calothorax decoratus*, *Amazilia alticola*, p. 309; *Phlogophilus* (g. n.) *hemileucurus*, *Calliphlox? iridescens*, *Aphantochroa? gularis*, p. 310; *Eriocnemis squamata*, *Schistes personatus*, p. 311; *Thalurania tschudii*, *Oreopyra leucaspis*, p. 312.

1860. GOULD, J. Descriptions of twenty-two New Species of Humming-Birds. < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, pp. 301–309.

From *P. Z. S.*, June 12, 1860, pp. 304–312, *q. v.*

1860. LAWRENCE, G. N. Descriptions of three new species of Humming-birds of the Genera Heliomaster, Amazilia, and Mellisuga. < *Ann. Lyc. Nat. Hist. New York*, vii, Apr., 1860, pp. 107–111.

H. stuartæ, p. 107, Bogotá; *A. xantusii*, p. 109, Cape St. Lucas; *M. merrittii*, p. 110, Veragua. [The "*Mellisuga merrittii*" = *Klais guimeti*.]

1860. LAWRENCE, G. N. Description of a New Species of Bird of the genus Phaeton, also of a New Species of Humming Bird of the Genus Heliopaedica. < *Ann. Lyc. N. Y.*, vii, Apr., 1860, pp. 142–145.

The Hummer is named *H. castaneocauda*, p. 145; it is from Cape St. Lucas, and is the same as *Amazilia xantusii*. *Id. ibid.*, p. 109.

1860. OCA, R. M. DE. The Mexican Humming-Birds. < *Proc. Acad. Nat. Sci. Phila.*, xii, 1860, pp. 47, 48, 80, 81, 551–553.

Descriptions of, and field notes on, 4 spp. in three separate papers: No. 1, *Campylopterus delattrei*; No. 2, *Cyanomyia cyanocephala*; No. 3, *Campylopterus pampa* and *Thaumastura elizæ*. (Title of Nos. 2 and 3 modified to "The Hummingbirds of Mexico".)

1860. SALVIN, O. Notes on the Humming-birds of Guatemala. < *Ibis*, ii, 1860, pp. 259–272.

More or less extended biographical notes on 23 spp., with remarks upon several others.

1861. Brewer, T. M. [Remarks on exhibition of two nests of Trochilus colubris.] < *Proc. Boston Soc. Nat. Hist.*, vii, 1861, p. 426.

1861. Geofroy, L. de. Note sur les Trochilidées, (Oiseaux-Mouches—Tominejas) de la Nouvelle Grenade.—Par Mr. L. de Geofroy, Secrétaire de la Légation de France á Bogotá. < *Contribuciones de Colombia a las Ciencias i a las Artes publicadas con la cooperacion de la Sociedad de Naturalistas Neo-Granadinos, por E. Uricoechea, Año Segundo*, 1861, pp. 1–16 (8vo, Bogotá, imprenta de El Mosaico; Londres, Trübner & Co).

The piece of the "Contribuciones" handled consists only of the above cover-title and of Geofroy's article, which treats briefly of 64 spp., mostly with reference to their habits, &c. The list is dressed after Bonaparte's, with Gould's names also, when different, and with the native appellations; the whole preceded by some general considerations.

Cf. *Ibis*, 1862, p. 188.

1861. Gould, J. Descriptions of Two New Species of Humming-Bird, belonging to the Genus Hypuroptila. < *P. Z. S.*, xxix, 1861, pp. 198, 199.

H. urochrysa, p. 198; *H. isauræ*, p. 199.

1861. Gould, J. Descriptions of Two New Species of Humming-Birds belonging to the Genus Hypuroptila. < *Ann. Mag. Nat. Hist.*, 3d ser., viii, 1861, pp. 268, 269.

From *P. Z. S.*, May 14, 1861, pp. 198, 199, *q. v.*

1861. Gould, J. An | Introduction | to | The Trochilidæ, | or | Family of Humming-birds. | By John Gould, F. R. S., &c. &c. | London: | printed for the author, | by Taylor & Francis, Red Lion Court, Fleet street. | 1861. 8vo. 4 p. ll., pp. i–iv, 1–216.

Synonymatic list, with primary reference to the pll. of the folio work, habitat, and miscellaneous critical and biographical comment on the 416 spp. and 123 genn. presented. Species given without a reference are: *Phaethornis boliviana*, p. 42; *Eulampis longirostris*, p. 69; *Dorifera rectirostris*, p. 71; (*Stellula*, p. 90;) *Cynanthus cœlestis*, p. 102; *Metallura quitensis*, p. 112 (*descr. nulla*); *Cyanomyia guatemalensis*, p. 148; (*Hemistilbon*, p. 149;) *Chrysuronia cœruleicapilla*, p. 165 (*descr. nulla*); *Circe*, p. 168; *Phæoptila*, p. 169; *Eucephala scapulata*, p. 166; *Phæoptila zonura*, p. 170; *Chlorostilbon igneus*, p. 176; *C. peruanus*, *C. napensis*, p. 177; *C. brevicaudatus*.

1862. Anon. Die Kolibris. < *Aus der Natur.*, xix, oder n. F. vii, Jan.-März 1862, pp. —-—.

Not seen.

1862. Crisp, E. On some points relating to the Anatomy of the Humming-bird (Trochilus colubris). < *P. Z. S.*, xxx, 1862, pp. 208–210.

1862. Gould, J. [Exhibition and Description of two New Species of Humming-birds from Ecuador, of a New Fregilus from the Himalayas, and of a new Prion.] < *P. Z. S.*, Apr. 8, 1862, pp. 124, 125.

The Hummers named are *Heliothrix longirostris* and *Aphantochroa hyposticta*, p. 124.

1862. Gould, J. [On new Trochilidæ, a new Fregilus, and a new Prion.] < *Ann. Mag. Nat. Hist.*, 3d ser., x, 1862, pp. 315–317.

From *P. Z. S.*, April 8, 1862, pp. 124, 125, *q. v.*

1862. Lawrence, G. N. Descriptions of Six New Species of Birds of the Families Charadridæ, Trochilidæ, and Caprimulgidæ. < *Ann. Lyc. Nat. Hist. New York*, vii, Feb., 1862, pp. 455–460.

The *Trochilidæ* here described are *Thalurania luciæ*, p. 456, and *Chlorostilbon insularis*, p. 457, both from the Tres Marias Isls.; *Trochilus aurigularis*, p. 458, loc. ignot.; *Sapphironia luminosa*, p. 458, N. Granada.

1863. Benvenuti, H. Description de quatre nouvelles espèces de la famille des Trochilidæ, provenant de la Nouvelle-Grenade et d'une nouvelle Sylvia du Brésil. < *Rev. et Mag. de Zool.*, xv, 1863, pp. 206–208.

Polytmus ceciliæ, *Mellisuga judith*, *M. salvadorii*, *M. ridolfii*, *Sylvia picciolii*, p. 207.—Traduction franç. d'un opuscule, petit in-4° de 16 pages, Florence, impr. royale, 1863. Voir le titre ci-dessous, 1866, Benvenuti, E.

1863. Crisp, E. On some Points relating to the Anatomy of the Humming-bird (Trochilus colubris). < *Ann. Mag. Nat. Hist.*, 3d ser., xii, 1863, pp. 70–72.

From *P. Z. S.*, June 24, 1862, pp. 208–210.

1863. GOSSE, P. H. The Humming Bird's Tongue. < *Zoologist*, xxi, 1863, pp. 8485, 8486, figg. 1, 2.

1863. GOULD, J. On a New Genus of Humming Birds [Androdon aequatorialis, sp. n.]. < *Ann. Mag. Nat. Hist.*, 3d ser., xii, 1863, pp. 246, 247.

1863. HEINE, F. Trochilidica. < *J. f. O.*, xi, 1863, pp. 173–217.

An extended and elaborate critical review.—*Dnophera*, p. 175; *Aspasta*, p. 179; *Polyplancta*, p. 182; *Eranna*, p. 187; *Eratina*, p. 190; *Polyerata*, p. 194; *Eratopis*, p. 191; *Erasmia*, p. 191; *Cloanges*, p. 200; *Polyonymus*, p. 206; *Thaumatoëssa*, p. 209; *Tricholopha*, p. 209; *Polyaena*, p. 215, genn. nn. *Thalurania subfurcata*, p. 181; *Agyrtria terpna*, p. 184; *A. compsa*, p. 185; *Hemithylaca braccata*, p. 193; *Chlorostilbon egregius*, p. 197; *Lesbia margarethæ*, p. 213; *Docimastes schliephackei*, p. 215, spp. nn.

1863. WALLACE, A. R. Who are the Humming Bird's Relations? < *Zoologist*, xxi, 1863, pp. 8486–8491.

Cypselidae, not *Nectariniidæ*.

1864. BURMEISTER, H. Sobre los Picaflores descriptos por D. Felix de Azara. < *Anales del Mus. Publ. de Buenos Aires*, i, Entrega primera, 1864, pp. 67–70.

This is the original form of the paper; see the German paper of same date. Cf. *Ibis*, 1865, p. 535; *P. Z. S.*, 1865, p. 467. See 1867, BURMEISTER, H.

1864. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Cuculidæ, and Trochilidæ, with a Note on Panterpe insignis. < *Ann. Lyc. Nat. Hist. New York*, viii, 1864, pp. 41–46.

The *Trochilidæ* here described are *Urochroa leucura*, p. 43, Ecuador; *Urosticte ruficrissa*, p. 44, Ecuador; and *Ramphomicron olivaceus*, p. 44, Bolivia.

1865. BURMEISTER, H. [Extract from a letter concerning Heliomaster angelæ.] < *P. Z. S.*, 1865, pp. 466, 467.

1865. BURMEISTER, H. Ueber die von Azara beschriebenen Kolibri-Arten. < *J. f. O.*, xiii, 1865, pp. 225–229. Nachtrag dazu, *J. f. O.*, 1866, pp. 88–90.

Azara's No. 289 = *Agyrtria albiventris*; Nos. 290, 291 = *Hylocharis ruficollis*; Nos. 292, 293, 294 = *H. bicolor* (lege *flavifrons*); Nos. 295, 296 = *Lampornis mango*; No. 298, unbestimmtbar; Nos. 297, 299 = *Heliomaster angelae*. (Vergl. *Zool. Rec.* a. d. J. 1865, p. 100; *Ibis*, 1865, p. 535; *P. Z. S.*, 1865, p. 467.)

1865. LAWRENCE, G. N. Descriptions of new species of Birds of the Families Paridæ, Vireonidæ, Tyrannidæ, and Trochilidæ, with a Note on Myiarchus panamensis. < *Proc. Acad. Nat. Sci. Phila.*, xvii, Jan , 1865, pp. 37–39.

The Hummers here described are *Chalybura æneicauda*, p. 38, Venezuela; *C. carnioli* and *Panychlora parvirostris*, p. 39, Costa Rica.

1865. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Tanagridæ, Dendrocolaptidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1865, pp. 126–135.

The Hummer here described is *Eupherusa niveicauda*, p. 134.

1865. SCLATER, P. L. [Exhibition of specimens of Heliomaster angelæ, with notes thereupon by Prof. Burmeister.] < *P. Z. S.*, xxxiii, 1865, pp. 466, 467.

1866. BENVENUTI, E. Descrizione di quattro nuove specie della famiglia dei Trochilidi provenienti dalla Nuova Granata e di una nuova specie di Dendroica del Brasile con l'aggiunta di una nota riguardante la Fauna Toscana. < *Annali R. Museo di Fisica e Storia Nat. di Firenze* per il, 1865, nuova serie, i, 1866, pp. 197–209.

Polytmus (Campylopterus) ceciliae, p. 202; *Mellisuga (Panaplites) judith*, p. 203; *M. (Cynanthus) salvadorii*, p. 204; *M. (Eriocnemis) ridolfii*, p. 205; *Dendroica picciolii*, p. 207.

This is the title as taken direct from the *Annali* for 1865, dated 1866; but the article must have appeared, in substance at least, with the names of all these new species, as early as 1863, being noticed in French in the *Rev. et Mag. de Zool.* of that year, xv, pp. 206–208; where it is described as a sm. 4to of 16 pp., Florence, 1863. I have not seen it in that form, nor of such date.—Compare same author, 1863. (See especially *Ibis*, 1876, pp. 5–11.)

1866. BURMEISTER, H. Ueber die von Azara beschriebenen Kolibri-Arten. Nachtrag [J. f. O., 1865, pp. 225–229]. < *J. f. O.*, 1866, pp. 88–90.

1866. LAWRENCE, G. N. Characters of Seven New Species of Birds from Central and South America, with a Note on Thaumatias chionurus. < *Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 344–350.

Besides the Hummer mentioned in the text there are described as new *Phæthornis cassinii*, p. 347, and *Eupherusa cupreiceps*, p. 348.

1866. LAWRENCE, G. N. Descriptions of Six New Species of Birds of the Families Hirundinidæ, Formicaridæ, Tyrannidæ, and Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, 1866, pp. 400–405.

The Hummers here described are *Heliodoxa henryi*, p. 402, Costa Rica; *Thaumatias viridicaudus*, p. 404, Buenaventuru; *Amazilia (Pyrrhophæna) graysoni*, p. 404, Tres Marias Islands. Cf. *Ibis*, 1867, p. 247.

1866. MULSANT, E., VERREAUX, J., *and* VERREAUX, E. Essai d'une Classification Méthodique des Trochilidées ou Oiseaux-Mouches. < *Mém. Soc. Imp. des Sci. Nat. de Cherbourg*, xii, 1866, pp. 152–240. (Separate, 8vo, Paris, 1866, pp. 98.)

Not seen.—Cf. *Ibis*, 1867, pp. 126–129; and especially *Zool. Rec.* for 1866, pp. 83–85, from which I took title and comment, before I handled the separate, which see (next title).

This work is designed to furnish an analytical arrangement of the family, and to characterize the several groups composing it. The *Trochilidæ* are primarily divided into two tribes, the Trochiliens and the Ornismiens, distinguished by characters drawn from the upper mandible. The Trochiliens form two sections, each of them with several branches, and the branch "Leucoliares" being further subdivided; and the Ornismiens similarly contain two divisions, each subdivided. The whole are arranged in 70 genera, including 29 subgenera, so great a reduction of the 123 genera recognized by Gould, in 1861, that "we should be inclined to look upon Prof. Mulsant's arrangement as an improvement, but for the belief that his reduction in their number *seems* to be obtained in some cases by totally ignoring certain of his predecessor's divisions, while, on the other hand, the use of so many groups larger than genera deprives the present work of a very desirable simplicity; but the fact, which is highly creditable to him, remains to be mentioned that characters which are more or less definite are assigned to each group of species, whether larger than a genus or less, named or unnamed." 11 new genera and 13 new subgenera are proposed; others are used in a sense very different from that attributed to them by Gould. There is great liberty taken with the spelling. 370 spp. are enumerated, among them 4 new ones without description—a most reprehensible practice. The work is announced as merely the precursor of a larger one on the same subject.

Leucolia, p. 31; *Ariana*, p. 36; *Euclosia*, p. 63; *Callidice*, p. 65; *Erebenna*, p. 66; *Bellona*, p. 75; *Paphosia*, p. 75; *Telamon*, p. 75; *Uralia*, p. 81; *Amathusia*, p. 85; *Zephyritis*, p. 87, are new genera; and *Dyrinia*, *Egolia*, *Elvira*, *Emilia*, *Eupogonus*, *Galenia*, *Halia*, *Manilia*, *Mesophila*, *Momus*, *Osalia*, *Philodice*, and *Polymnia* are new subgenera. *Amazilia lessoni*, p. 35 = *A. pristina* of Gould; *Diphlogæna (Helianthea) lessoni*, p. 61 = *Lampropygia cœligena* + *L. boliviana* of Gould; *Bellona hectoris*, p. 75 = *Orthorhynchus ornatus* of Gould; *Zephyritis (Calypte) elviræ*, p. 88 = *Calypte helenæ* of Gould.

1866. MULSANT, E., VERREAUX, J., *and* VERREAUX, E. Essai | d'une | Classification Méthodique | des | Trochilidées | ou | Oiseaux-Mouches, | par E. Mulsant, | Sous-Bibliothécaire de la ville de Lyon, Professeur d'histoire naturelle au Lycée, | Président de la Société linnéene, etc., | et | Jules Verreaux, | Attaché au Muséum d'histoire naturelle de Paris, | Edouard Verreaux, | Marchand-naturaliste. | — | Paris, | F. Savy, Libraire, Rue Hautefeuille, 24, || Deyrolle, Rue de la Monnaie, 19, | Verreaux, Place Royale, 9. | [1866.] 1 vol. 8vo. pp. 98.

Extrait des Mémoires de la Société Impériale des Sciences Naturelles de Cherbourg, t. xii, 1866. Cherbourg, Imp. Bedelfontaine et Syffert.

1866. SCLATER, P. L. [Exhibition of some specimens of Eustephanus fernandensis and E. stokesi.] < *P. Z. S.*, xxxiv, 1866, pp. 556, 557.

Including extracts from a letter by E. L. Landbeck on the *Trochilidæ* of Juan Fernandez.

1867. BURMEISTER, H. Suplemento á las noticias sobre los Picaflores de d. Félix de Azara. < *Anal. Mus. Publ. Buenos Aires*, i, Entrega segunda, 1867, p. 86 (última página).

"La última página de la primera Entrega debe suprimirse por estar reimpressa en la segunda Entrega." This "suplemento" is therefore on the last page (86) of Entrega i, 1864; but only appeared with Entrega ii, 1867. See 1864, BURMEISTER, H.

1867. LAWRENCE, G. N. Descriptions of New Species of Trochilidæ. < *Ann. Lyc. Nat. Hist. New York*, viii, May, 1867, pp. 483–485.

Doricha bryantæ, p. 483; *Oreopyra venusta*, p. 484; *O. cinereicauda*, p. 485; all three from Costa Rica.

1868. GOULD, J. Descriptions of two new species of Humming-Birds. < *Ann. Mag. Nat. Hist.*, 4th ser., i, 1868, pp. 322, 323.

Eriocnemis smaragdinipectus, p. 322, Ecuador; *Gouldia melanosternon*, p. 323, Peru.

1868. GOULD, J. On some additional species of Eutoxeres. < *Ann. Mag. Nat. Hist.*, 4th ser., i, 1868, pp. 455–457.

Eutoxeres heterura, p. 457, sp. n., from Central Ecuador, and *E. salvini*, p. 457, sp. n., from Veragua and Costa Rica.

1868. MILLINGTON, L. A. An albino Humming-Bird [Trochilus colubris?]. < *Am. Nat.*, ii, 1868, p. 110.

1868. MILLINGTON, L. A. An Albino Humming Bird [Trochilus colubris?]. < *Zoologist*, 2d ser., iii, 1868, p. 1343.

From the "American Naturalist," April, 1868.

1868. SALVIN, O. [On the probable identity of Heliomaster spectabilis Lawr. (cf. Ibis, 1866, 115) with Eugenes fulgens.] < *Ibis*, 2d ser., iv, 1868, p. 251.

1869. BEULLOCH, —. El Pájaro-mosca [Trochilus]. < *La Naturaleza*, i, 1869, pp. 61–69.

Traducido y anotado por D. Jesus Sanchez. "La primera noticia acerca de estas aves data del año 1558, y se encuentra en 'Las singularidades de la Francia antártica' (Brasil)".

1869. GOULD, J. Description of a New Genus and Species of the Family Trochilidæ. < *P. Z. S.*, xxxvii, 1869, pp. 295, 296.

Oreonympha nobilis, p. 295, Tinta, Peru.

1869. GOULD, J. Descriptions of five new species of birds from Queensland, Australia; and a new Humming-bird from the Bahamas. < *Ann. Mag. Nat. Hist.*, 4th ser., iv, Aug., 1869, pp. 108–112.

Not seen.—The Hummer is *Doricha lyrura*, p. 112; from Inagua, Dr. H. Bryant.

1870. A[LLEN], J. A. [Identification of a specimen of Trochilus colubris.] < *Am. Nat.*, iv, 1870, p. 576.

1870. BAIRD, S. F. Agency of Humming-birds in fertilizing Plants. < *Harper's New Monthly Mag.*, xl, 1870, p. 940.

1870. ELLIOT, D. G. Description of a new Species of Humming-bird of the Genus Chrysolampis [chlorolæma]. < *Ann. Mag. Nat. Hist.*, 4th ser., vi, 1870, p. 346.

1870. GOULD, J. [Remarks on a Collection of Humming-birds made by Mr. Buckley in Ecuador, and Descriptions of two new Species.] < *P. Z. S.*, xxxviii, 1870, pp. 803, 804.

Chætocercus bombus, *Thalurania hypochlora*, p. 804, both from Citado, Ecuador; with list of 30 spp.

1870. GOULD, J. On a supposed new Species of Humming-bird [Eustephanus leyboldi] from the Juan-Fernandez Group of Islands. < *Ann. Mag. Nat. Hist.*, 4th ser., vi, 1870, p. 406.

1871. ELLIOT, D. G. Descriptions of two new Species of Humming-birds belonging to the Genera Eupherusa and Cyanomyia. < *Ann. Mag. Nat. Hist.*, 4th ser., viii, 1871, pp. 266, 267.

E. poliocerca, p. 266, Putla, Mexico; *C. viridifrons*, p. 266, Mexico.

1871. GOULD, J. Descriptions of six new Humming-Birds. < *P. Z. S.*, xxxix, 1871, pp. 503–505.

Helianthea osculans, *Heliangelus squamigularis*, p. 503; *Heliomaster albicrissa*, *Lesbia chlorura*, p. 504; *Eriocnemis russata*, *Polytmus leucorrhous*, p. 505.

1871. GOULD, J. On a new Species of Humming-bird belonging to the Genus Spathura [solstitialis]. < *Ann. Mag. Nat. Hist.*, 4th ser., viii, 1871, pp. 61, 62.

1871. JOHNSON, L. The Humming Bird [Trochilus colubris]. < *Am. Nat.*, v, 1871, pp. 309, 310.

Notes of nidification at Bradford, Massachusetts.

1871. LAWRENCE, G. N. Descriptions of three New Species of American Birds, with a Note on Eugenes spectabilis. < *Ann. Lyc. Nat. Hist. N. Y.*, x, 1871, pp. 137–140.

The specific validity of *Eugenes spectabilis* reaffirmed.

1872. ELLIOT, D. G. Description of a supposed new Species of Humming Bird of the Genus Eriocnemis. < *Ibis*, 3d ser., ii, 1872, pp. 293–295.

E. dysclius, p. 294; list of 14 spp. of the genus.

1872. ELLIOT, D. G. The Humming-birds of the West Indies. < *Ibis*, 3d ser., ii, 1872, pp. 345–357.

General characteristics of the trochilidine *Ornis;* synonymatic and critically annotated synopsis of 18 spp., with tabular view of their distribution in each of the islands.

1872. GOULD, J. Descriptions of two new Species of Humming-Birds. < *Ann. Mag. Nat. Hist.*, 4th ser., ix, 1872, pp. 195, 196.

Heliangelus micraster, *Chlorostilbon pumilus*, p. 195.

1872. GOULD, J. Description of three new Species of Humming-birds. < *Ann. Mag. Nat. Hist.*, 4th ser., x, 1872, pp. 452, 453.

Iolœma whitelyana, *Adelomyia chlorospila*, p. 452; *A. cervina*, p. 453.

1873. ANON. The Ruby-throated Humming Bird [Trochilus colubris]. < *Am. Sportsman*, iii, 1873, p. 54. See also p. 251.

1873. ANON. A Humming-bird Fight. < *Kingston* [N. Y.] *Freeman*, Sept. 5th, 1873.

Between two individuals of *Trochilus colubris.* Quoted in *Am. Sportsm.*, ii, 1873, p. 187.

1873? BOUCARD, A. Notes sur quelques Trochilidés. 8vo. pp. 16.

Presentées à la Société linnéene de Lyon, les 10 fêvrier 1873 et séances suivantes.

1873. GOULD, J. On a new Genus and Species [Hylonympha macrocerca] of the Family Trochilidæ. < *Ann. Mag. Nat. Hist.*, 4th ser., xii, 1873, p. 429.

1873–77. MULSANT, E., *and* VERREAUX, E. Histoire Naturelle des Oiseaux-Mouches ou Colibris constituant la famille des Trochilidés. Par E. Mulsant et feu Edouard Verreaux. Ouvrage publiée par la Société Linnéene de Lyon. Paris. 1873–77. 4 vols. 4to. Pub. par livr.

I have only seen the first two livraisons, and therefore cannot give the full title and collation of this great work.—Vol. I, Livr. 1, 2, 1873; 3, 4, 1874: pp. i–vi, 1–343, pll. xv. Vol. II, Livr. 1, 2, 1875; 3, 4, 1876. Vol. III, Livr. 1, 2, 1876; 3, 4, —? Vol. IV, Livr. 1–4, —? It is said to have been completed in 1877. Cf. *Ibis*, 1874, pp. 453, 454.

1873. SALVIN, O., *and* ELLIOT, D. G. Notes on the Trochilidæ. The genus Phaethornis. < *Ibis*, 3d ser., iii, 1873, pp. 1–14.

In this and subsequent papers of the same character, forming in effect a series, but with modified caption, the synonymy, distribution, and diagnoses are very elaborately treated, with much critical commentary, and lists of specimens examined. The present article treats in such manner of 14 spp. of the genus named.

1873. SALVIN, O., *and* ELLIOT, D. G. Notes on the Trochilidæ. The Genera Pygmornis, Glaucis, and Threnetes. < *Ibis*, 3d ser., iii, 1872, pp. 269, 279.

Pygmornis, 8 spp.; *Glaucis*, 1 sp.; *Threnetes*, 4 spp.

1873. SALVIN, O., *and* ELLIOT, D. G. On two Species of Trochilidæ of the Genus Lophornis. < *Ibis*, 3d ser., iii, 1873, pp. 279, 280.

L. gouldi; L. stictolophus (=*reginae* Gould, *nec* Schreibers), p. 280, sp. renom.

1873. SALVIN, O., *and* ELLIOT, D. G. Notes on the Trochilidæ. The Genus Thalurania. < *Ibis*, 3d ser., iii, 1873, pp. 353-361.

11 spp., with 2 others not known to the authors.

1873. WHITELY, H. Notes on Humming-birds collected in High Peru. < *P. Z. S.*, 1873, pp. 187–191.

Field-notes on 17 spp. For later notes see *tom. cit.*, p. 784, and *op. cit.*, 1874, p. 675.

1873. WHITELY, H. Additional Notes on Humming-birds collected in High Peru. < *P. Z. S.*, 1873, p. 784.

Field-notes on 5 spp. For other notes see *tom. cit.*, p. 187, and *op. cit.*, 1874, p. 675.

1874. ELLIOT, D. G. Description of an apparently new Species of Bird belonging to the Family Trochilidæ, of the Genus Eucephala. < *Ibis*, 3d ser., iv, 1874, pp. 87–89.

E. subcaerulea, sp. n. List of 9 spp. of the genus.

1874. ANON. The Pugnacity of the Humming Bird. < *Am. Sportsman*, iii, 1874, p. 251. See also Vol. II, 1873, p. 187.

1874. ELLIOT, D. G. Remarks on some Typical Specimens of the Trochilidæ, with a Description of one new Genus. < *Ibis*, 3d ser., iv, 1874, pp. 261–264.

A. von Pelzeln's types from the Vienna Museum. *Ptochoptera*, p. 261, gen. n., based on *Thalurania iolæma* Pelz. The other species remarked upon are *Cephalepis beekii*, p. 262; *Argyrtria meliphila*, p. 263; *A. media*, p. 263; and *Thalurania lerchi*.

1874. ELLIOT, D. G. Notes on the Trochilidæ. The Genus Helianthus. < *Ibis*, 3d ser., iv, 1874, pp. 330–335.

8 spp. critically treated.

1874. "H. A." The Humming Bird [Trochilus colubris] and her Nest. < *Am. Sportsman*, iii, 1874, p. 381.

Bird protected its nest during a storm by leaves temporarily fastened above it.

1874–75. OCA, R. M. DE. Ensayo ornitologico de la familia Trochilidæ o sea de los Colibries o Chupamirtos de Mexico. < *La Naturaleza*, iii, 1874, pp. 15–31, 59–66, 99–106; iii, 1875, pp. 159–167, 203–211, 299–304; 12 láminas.

Also separate, 1 vol., 4to, Mexico, 1875, *q. v.*

1874. PARTRIDGE, I. H. Humming-Birds. < *Pop. Sci. Monthly*, July, 1874, pp. 277–287, figg. 1–5.

General popular account.

1874. "READER." A Tame Humming Bird [Trochilus colubris]. < *Am. Sportsman*, iv, 1874, p. 75.

1874. S[CLATER], P. L. [List of seven species of Trochilidæ procured by Mr. H. Whitely in High Peru.] < *P. Z. S.*, Dec. 1, 1874, p. 676.

Merely a foot-note to one of Mr. Whitely's articles on Peruvian *Trochilidæ*.

1874. VILLADA, M. M. Troquilideos [Trochilidae] del valle de México—su descripcion y sinonimia adoptada por el profesor Jhon [sic] Gould, con algunas notas sobre sus costumbres. < *La Naturaleza*, ii, 1874, pp. 339–369, pl. 1.

1874. WHITELY, H. Further Notes on Humming-birds collected in High Peru. < *P. Z. S.*, Dec. 1, 1874, pp. 675, 676.

On the habits of *Lesbia nuna*, *Acestrura mulsanti*, *Oreonympha nobilis*, and *Bourcieria inca*. Note by P. L. S[clater] giving list of seven spp. collected by Mr. Whitely in High Peru. For Mr. Whitely's earlier notes see *P. Z. S.*, 1873, pp. 187 and 784.

1875. ELLIOT, D. G. Notes on the Trochilidæ. The Genera Chlorostilbon and Panychlora. < *Ibis*, 3d ser., v, Apr., 1875, pp. 149–172.

Monographic; much criticism, synonymy, &c. *Chlorostilbon*, 8 spp. *Panychlora*, 3 spp.

1875? BOUCARD, A. Notes sur les Trochilidés du Mexique. 8vo. pp. 16.

Présentées à la Société linnéene de Lyon, le 11 janvier, 1875.—P. 14, Liste générale des Trochilidés du Mexique; p. 15, Errata de ses premières notes (1873).

1875. MULSANT, E. Catalogue des Oiseaux-Mouches ou Colibris. Lyons, Paris and London. 1875. 8vo. pp. 32.

Not seen. According to the *Zool. Rec.*, a number of new generic names occur in this list, some but not all of which were afterward characterized in the same author's *Hist. Nat. des Ois.-Mouches*, then in course of publication. They are as follows: *Alsosia*, p. 17; *Amalsia*, p. 29; *Aurinia*, p. 27; *Calligenia*, p. 20; *Dialia*, p. 27; *Eudosia*, p. 20; *Eudosia* (bis), p. 32; *Engyete*, p. 21; *Eupogonus*, p. 26; *Helymus*, p. 23; *Himalia*, p. 28; *Himelia*, p. 7; *Hypolia*, p. 17; *Idas*, p. 27; *Lavinia*, p. 24; *Leucaria*, p. 29; *Lisoria*, p. 11; *Methon*, p. 7; *Myrmia*, p. 32; *Mytinia*, p. 28; *Nania*, p. 21; *Niche*, p. 21; *Nodalia*, p. 23; *Peratus*, p. 23; *Pholoe*, p. 22; *Polyplaneta*, p. 17; *Saturia*, p. 21; *Sericotes*, p. 15; *Timolia*, p. 23; *Tricholopha*, p. 27.

1875. OCA, R. M. DE. Ensayo ornitológico | de los | Troquilideos ó Colibries de México | por Rafael Montes De Oca | Miembro de la Sociedad Mexicana de Historia Natural, Profesor de Dibujo, | Pintura en Cristal, é idiomas | publicado | con la proteccion del Ministerio de Fomento | Inter folia frvctvs | Mexico | imprenta de Ignacio Escalente, | Bajos de San Agustin num. 1. | — | 1875. 1 vol. 4to. 2 p. ll. (title and dedication), pp. 1–58 (text), 1 l. (index); portrait of author (frontisp.), and 46 figg. col'd on 12 pll. (Separate from *La Naturaleza*, iii, 1874–5.)

Introduccion, pp. 1–4; idea general de dichas aves y uso que hacan de sus plumas los antiguos Méxicanos, pp. 5, 6; descripcion de los Colibries que se encuentran en México (48 especies), pp. 6–58; Indice, pp. 59, 60.

1876. COOPER, J. G. Early Nesting of the Anna Humming-Bird [Calypte anna]. < *Am. Nat.*, x, No. 1, Jan., 1876, pp. 48–50.

1876. ELLIOT, D. G. Remarks on some Type Specimens of Trochilidæ from the Museums of Neuchâtel and Florence. < *Ibis*, 3d ser., vi, No. xxi, Jan., 1876, pp. 5–11.

Bourcieria insectivora (Tschudi). *Heliodoxa leadbeateri* (Bourc.). *Leucippus leucogaster* (Tschudi).—*Mollisuga judith*, Benv. = *Paroplites flavescens*. *M. salvadorii*, Benv. = *Cynanthus cyanurus* ♀. *M. ridolfii*, Benv. = *Eriocnemis vestita* ♀.

1876. ELLIOT, D. G. Notes on the Trochilidæ. The Genus Lampropygia. < *Ibis*, 3d ser., vi, Jan., 1876, pp. 54–60.

Critical notes on 7 spp. *L. columbiana*, p. 57, sp. n.

1876. ELLIOT, D. G. Notes on the Trochilidæ. The Genera Cyanomyia and Heliotrypha. < *Ibis*, 3d ser., vi, July, 1876, pp. 311–319.

Of the former 7 and of the latter 3 spp. are distinguished, with synonymy and criticism.

1876. ELLIOT, D. G. Notes on the Trochilidæ. The Genera Heliothrix, Calliphlox, Catharma [g. n.], and Petasophora. < *Ibis*, 3d ser., vi, Oct., 1876, pp. 394–407.

Heliothrix, 3 spp.; *Calliphlox*, 2 spp.; *Catharma*, 1 sp.; *Petasophora*, 6 spp.; with synonymy, diagnosis, and criticism.

1877. BEAL, W. J. Fertilization of Flowers by Birds [*i. e.*, by Trochilus colubris]. < *Am. Nat.*, xi, No. 12, Dec., 1877, p. 754.

1877. BOUDWIN, G. The ruby-throated humming bird [Trochilus colubris]. < *Forest and Stream*, viii, June 7, 1877, p. 280.

Account of the nidification.

1877. ELLIOT, D. G. Review of the Specimens of Trochilidæ in the Paris Museum, brought by D'Orbigny from South America. < *Ibis*, 4th ser., i, 1877, pp. 133–142.

D'Orbigny's were among the most important of the earlier collections of these difficult birds, and the present paper, drawn up from their examination, is specially valuable. Comparatively few of the species, described as new by D'Orb. and Lafr., stand, most being provided with earlier names by Vieillot, Lesson, etc. *Thaumatias neglectus*, sp. n., p. 140 = *Ornismya bicolor* D'Orb. & Lafr. Upwards of 30 spp. are accounted for.

1877. ELLIOT, D. G. [Amazilia lucida, sp. n.] < *Ann. Mag. Nat. Hist.*, 4th ser., xx, 1877, pp. 404 – —.

Not seen. Cf. *Ibis*, 1878, p. 113.

1877. ELLIOT, D. G. Remarks on Selasphorus alleni, Henshaw. < *Bull. Nutt. Ornith. Club.*, ii, No. 4, Oct., 1877, pp. 97–102. 2 figs.

Contends that *S. alleni* is the true *S. rufus* Gm., and names *S. henshawi* (p. 102) what Henshaw had considered to be *S. rufus*. Cf. *op. cit.*, iii, 1878, p. 11.

1877. HENSHAW, H. W. Description of a new species of Humming-Bird from California. < *Bull. Nutt. Ornith. Club.*, ii, No. 3, July, 1877, pp. 53–58, 2 figs.

Selasphorus alleni, p. 53, compared at much length with *S. platycercus*.

1877. HENSHAW, H. W. Notes on the Habits of the Green-backed California Humming Bird. Selasphorus Alleni, (Henshaw). < *Field and Forest*, iii, No. 6, Dec., 1877, pp. 95–98.

1877. LAWRENCE, G. N. Note on Doricha enicura (Vieill). < *Bull. Nutt. Ornith. Club*, ii, No. 4, Oct., 1877, p. 108, 109.

The so-called "*Doricha enicura* (Vieill.)," which had been ascribed to the U. S., proves to have been *Calothorax lucifer* (Sw.) ♀. See Henshaw, *Amer. Sportsm.*, v, Feb. 20, 1875, p. 328, and *Rep. Expl. W. 100th Merid.*, Vol. V, p. 381.

1877. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Trochilidæ and Tetraonidæ. < *Ann. N. Y. Acad. Sci.*, i, Dec., 1877, pp. 50–52.

Sporadinus bracei, p. 50, Bahamas; *Orthorhynchus emigrans*, p. 51, Venezuela; *Cyrtonyx sumichrasti*, p. 51, Tehuantepec. (Cf. *Ibis*, 1878, p. 468.)

1877. MERRILL, J. C. A Humming Bird [Amazilia cerviniventris] new to the Fauna of the United States. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 26.

1877. Mulsant, E. Description d'une espèce nouvelle de Trochilidé. < *Ann. Soc. Linn. Lyon,* Oct. 12, 1877, pp. — – —.

Not seen. *Arinia* (g. n.) *boucardi*, p. —, Costa Rica. Cf. *Ibis*, 1878, p. 469.

1877. Salvadori, T. Description of a . . . and of a new Humming-bird of the Genus Heliangelus. < *Ibis,* 4th ser., i, July, 1877, pp. 337–339.

The Hummer here described is *Heliangelus taczanowskii*, p. 338, from Bogotá (Münsberg).

1877. [Sclater, P. L., *and* Salvin, O.] Mulsant's 'Histoire Naturelle des Oiseaux-Mouches.' < *Ibis,* 4th ser., i, Apr., 1877, p. 244.

Review of parts of that work. Cf. *Ibis*, 1875, p. 510.

1878. Allen, C. A. An Albino Anna Humming-Bird [Calypte anna]. < *Bull. Nutt. Ornith. Club,* iii, No. 4, Oct., 1878, pp. 192, 193.

1878. Coues, E. Nest and Eggs of Selasphorus platycercus. < *Bull. Nutt. Ornith. Club,* iii, No. 2, Apr., 1878, p. 95.

Communicated by E. A. Barber.

1878. Elliot, D. G. Notes on the Trochilidæ. The Genus Thaumatias. < *Ibis,* 4th ser., ii, Jan., 1878, pp. 35–53.

One of the most extensive and important of this writer's numerous critical reviews of Hummers, analyzing and describing no fewer than 21 spp. which he considers to belong here, among them *T. nigricauda*, p. 47, and *T. nitidicauda*, p. 48, spp. nn. The author considers that these birds should be called by Reichenbach's name of *Argyrtria;* a view from which the editors dissent.

1878. Elliot, D. G. Description of a new Species of Humming-bird, from Mr. Gould's Collection, belonging to the Genus Iolæma [luminosa Gould MS.]. < *Ibis,* 4th ser., ii, No. 6, Apr., 1878, p. 188.

1878. Henshaw, H. W. Additional Remarks on Selasphorus alleni. < *Bull. Nutt. Ornith. Club,* iii, No. 1, Jan., 1878, pp. 11–15.

Defends and re-establishes his original position respecting *S. rufus* and *S. alleni*. Cf. *op. cit.*, 1877, pp. 53 and 97.

1878. Ridgway, R. On a new Humming Bird (Atthis ellioti) from Guatemala. < *Proc. U. S. Nat. Mus.*, i, 1878, pp. 8–10, 2 figg.

The new species is carefully compared with its nearest relative, *A. heloisæ*, the characters and synonymy of which are also given; and both are figured in outline in the cuts.

1879. A[llen], J. A. Elliot's Synopsis of the Trochilidæ. < *Bull. Nutt. Ornith. Club,* iv, No. 4, Oct., 1879, pp. 230–232.

Review of that work.

1879. Ballou, W. H. A Hummer's [Trochilus colubris] Meal. < *Am. Nat.*, xiii, No. 2, Feb., 1879, p. 127.

Lapping sirup "as a dog would lap water."

1879. Burroughs, J. Does the Humming-Bird [Trochilus colubris] sing? < *Science News,* i, No. 5, Jan. 1, 1879, p. 89.

Answered affirmatively by "an intelligent Vermont lady."

1879. Dall, W. H. On the Use of the generic Name Gouldia in Zoology. < *P. Z. S.,* Feb. 4, 1879, pp. 131, 132.

Not available in Ornithology, being preoccupied in Conchology. Another genus of *Trochilidæ*, *Halia* M. & V., is in like case. *Doryfera* is antedated by *Doryphora*. (*Glaucus* Bruch, *Laridæ*, and *Gnathodon* Jardine, *Columbidæ*, both also preoccupied in mollusks.)

1879. Elliot, D. G. Smithsonian Contributions to Knowledge. | —317— | A | Classification | and | Synopsis of the Trochilidæ. | By | Daniel Giraud Elliot, F. R. S. E., Etc. | — | Washington City: | published by the Smithsonian Institution. | [March, 1879.] 4to. cover-title, pp. i–xii, 1–277, figg. 1–127. (Forming a part of Vol. xxiii of the *Smiths. Contr. Knowl.*)

The above is the cover-title; the regular title is the same, excepting the words "[March, 1879.]", in place of which is "[Accepted for publication, January, 1878.]". Printed at Philadelphia, by Collins. Title and preface, pp. i–vi; contents, pp. vii–xii; main text, pp. 1–248, with 127 figures. Appendix: key to the 120 genera, pp. 249–256. Index of 120 genera adopted, pp. 257, 258; index of 339 generic names mentioned, pp. 259–262; index of 426 species adopted, pp. 263, 268; index of 880 specific names mentioned, pp. 269–277. Apr., 187 to p. 8; July,

1879. ELLIOT, D. G.—Continued.

1878, to p. 40; Aug., 1878, to p. 80; Sept., 1878, to p. 136; Oct., 1878, to p. 144; Nov., 1878, to p. 160; Dec., 1878, to p. 208; Jan., 1879, to p. 248; appendix and furnishings, March, 1879.

This great work treats formally of the genera and species of the family, giving extensive synonymy, description, habitat, and general comment in nearly every case. It is evidently prepared with care, by one exceptionally familiar with a subject so fascinating and so peculiarly difficult as is that of the present family. It is a monograph in a high sense of that term, and one which places the matter in a state more satisfactory than that in which it had been left by Gould and other leading specialists.

The author recognizes 120 genera in this family, making a very judicious reduction in number from the 339! generic names mentioned in the work; no fewer than 219 being reduced to synonyms. In like conservative manner, the species regarded as valid are 426 in number, out of 880 nominal ones which the author accounts for, leaving 454, or more than half, as synonyms. Such treatment as this is *prima facie* evidence of the merit of the author's work and trustworthiness of his results; for a similar reduction of nominal species is the usual result of a critical study of the current lists of species and genera in nearly every group in ornithology. There is a running commentary through the work on the systematic position and relations of the generic forms; and analyses of the species of each genus, greatly facilitating their determination.

Nearly all the genera, at least, and some of the leading specific forms, are illustrated by outline figures of head, wing, and tail, showing details of external form. There are 127 such figures, or, on an average, a little more than one to each genus treated.

The author's previous study of this group may be inferred from the list of 15 papers, either by himself alone or in joint authorship with Salvin, published in the *Ibis*, 1872–1878 (see above for these). These papers discuss, more at length than the present Synopsis does, the occasion for many of the author's conclusions, particularly in the matter of nomenclature and synonymy.

New names proposed are: *Floricola*, p. 82, *Callipharus*, p. 211, and *Iache*, p. 234, genn. nn.; *Petasophora rubrigularis*, p. 51, and *Bourcieria assimilis*, p. 78, spp. nn.

Extracts from the Preface will further elucidate the plan and scope of the work:—"In the following Synopsis I have given every species of Humming-bird known to me, that in my opinion is entitled to a separate rank, and even of these, it is possible that future information will compel us to place some of them among the synonymes of others. Although the Family contains a certain number of groups, composed of species having more or less relationship with each other, I have not seen my way very clear to the recognition of any subfamilies as has been done by other writers. . . . In the present Synopsis, the recognition of genera has been carried to the farthest limit that seemed practicable, and in every case it has been attempted to give structural characters for the genera which have been acknowledged. . . . The arrangement here given of the species composing this Family is, I am aware, very different from all those heretofore proposed. It is not, however, the result of guess or imagination, but has been arrived at by a careful comparison of the different species themselves, for of the 426 acknowledged as distinct in this Synopsis, about 380 are continued in the great collection, by the assistance of which this book has been written, and of the remaining ones, with but few exceptions, I have carefully examined the types. . . . In the present work, both Genera and Species have been critically examined, and it has been found necessary to make some important and very unexpected changes, especially in the first of these divisions; but it is believed that in every instance a satisfactory explanation is given for thus deviating from the course, which, when judged by the law of priority, had been ascertained to be incorrect, although perhaps sanctioned in some degree by custom. . . . The synonymy is that which, in the majority of cases, refers to a passage in the work cited, that gives some desirable information regarding the species. . . . The chief exceptions to this are the lists of Bonaparte and Reichenbach, which, on account of the many genera first proposed in them, could not be passed over. The value of synonymy has not been deemed to consist in its great length.—The same may be said of the descriptions of the species. Usually one of a genus has been pretty thoroughly described, but I have thought it best, in the majority of cases, to give simply the differences that may exist in allied species, . . . The asterisk, placed before the names of certain species indicates that it [*i. e.*, the species in mention] is not contained in my collection. . . . The drawings which illustrate the generic characters, are with few exceptions, all made from specimens contained in my collection." And I may add, as the author omits to do so, that that they were all drawn by Mr. R. Ridgway.

This "Classification and Synopsis of the Trochilidæ" is likely to supplant previous monographs as the leading authority on the subject.

1879. SCLATER, P. L. [Thaumasius taczanowskii, g. sp. n., Peru.] < *P. Z. S.*, Feb. 18, 1879, pp. 145, 146.

The genus *Thaumasius*, though intended as an emendation of *Thaumatias*, is in effect a new genus: see *Ibis*, 1879, p. 451.

1879. [Sclater, P. L., *and* Salvin, O.] Elliot's Classification of the Trochilidæ. <*Ibis*, 4th ser., iii, Oct., 1879, pp. 479, 480.
Notice of the work.

ADDENDUM TO TROCHILIDÆ.

Trochilidine literature is extensive, and most of it is "special"—that is, represented by books and papers exclusively devoted to this group of birds. Hummers are very peculiar birds, and their study may almost be said to form a particular department of ornithology—in fact, the word "Trochilidist" has been coined to designate those who pay special attention to this branch of the science; and there are few ornithologists who, however great their general acquirements, can be considered experts in this study. As the plan of this Bibliography, consequently, permits an exceptionally complete exposition of Trochilidine literature, certain points which appear upon consideration of the whole subject may not improperly be here noted, as preliminary to the list of the genera of Hummingbirds with which this Addendum concludes.

Hummers were of course unknown to the ancients, whose τρόχιλος or *trochilus* is believed to have been one of the Plovers (*Charadriidæ*). Misled by the false analogy of small size, slender bill, and glittering plumage, some comparatively modern authors have confounded these exclusively American birds with certain Old World forms, as the *Cinnyridæ* for instance. But as a rule the *Trochilidæ* have been recognized as one of the most perfectly circumscribed groups in ornithology. The literature of the subject dates back to the "heroic age"; the first mention of any bird of this family is said to have been made in 1558, and can scarcely have been earlier. Scattered notices of such birds appeared in various works relating to America during the remainder of the xvi. and the whole of the xvii. century; but it was not until toward the close of the latter that special papers upon the subject appeared; the oldest one which I have seen dating 1693, when Hamersly* described the "American Tomineius" in the *Philos. Trans.* The xviii. century gave us almost nothing of this kind; but notices multiplied in various historical, geographical, and narrative works relating to America; while during the latter half of this century—that is to say, in the Linnæan period—several formal accounts of *Trochilidæ* formed a part of the systematic treatises on ornithology; notably, those of Linnæus, Brisson, Buffon, Gmelin, and Latham; but the sum is small, and the substance meagre, of all that was learned of the birds prior to 1800.

In 1758, when Linnæus applied his system consistently to birds, in the x. ed. of the *Syst. Nat.*, he used the classic word *Trochilus* for a genus coextensive with the modern family *Trochilidæ*, and catalogued 18 species, mostly based upon descriptions or figures furnished by Seba, Brown, Sloane, Catesby, Edwards, Clusius, and Albin; with references also to the *Mus. Ad. Fr.* In the xii. ed., 1766, this number was increased to 22, with many additional references, as to Marcgrave, Willughby, Ray, and especially Brisson.

In 1760, the last-named famous ornithologist gave us what may be deemed the first extended, or in any sense "monographic" account of *Trochilidæ*. Studiously collating the already numerous notices scattered through works of the character I have mentioned, as well as through the illustrated and other natural history treatises of his predecessors in ornithology, he was enabled to describe with his customary elaboration no fewer than 36 species, and to present a copious bibliography. He also made the first tenable genera of Hummers after *Trochilus*, dividing the whole family into two groups, *Polytmus* and *Mellisuga*—one containing large species with curved bills, the other small species with straight bills. In this action of Brisson's we see the origin of the curious fashion which so long endured among French writers—that of distinguishing "Colibris" from "Oiseaux-mouches" among *Trochilidæ*. It is also notable as the starting-point of a generic subdivision of the group which was destined at length to reach the farcical and scandalous extreme of some 350 genera for few more than 400 known species.

In 1779, Buffon adopted the same two divisions of "Colibris" and "Oiseaux-mouches," presenting 19 species of the former, and 24 of the latter group; a total of 43 *Trochilidæ*. If we except the mere naming and describing of some additional species by Gmelin and Latham, nearly all that had been learned of the birds up to the close of the last century was reflected in the works of these two famous French authors.

In 1788, the industrious but indiscriminate and incompetent compiler of the xiii. ed. of the *Syst. Nat.* produced a total of 65 species of *Trochilus*. None were described except at second-hand, but to many of them binomial names were first affixed. Two years afterward 65 species of *Trochilus* were recorded in the *Ind. Orn.* of Latham.†

We are thus brought, by the stepping-stones, of but few works requiring special mention here, to the opening of the xix. century, which saw Audebert and Vieillot's luxurious work, *Ois. Dorés*; perhaps the first ornithological work which undertook to reproduce metallic reflections of plumage. The feathery Iris of these exquisite creatures is always fascinating, and there are no more favorable subjects for glittering plates. The work, indeed, was not exclusively a monograph of the Hummers, but the *Histoire Naturelle des Colibris et des Oiseaux-mouches* formed a large part of the undertaking. Scientific names were not used in the *Ois. Dor.;* but a technical nomenclature of the subjects of the work was furnished by Vieillot in 1817.

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* By a clerical error, and my own oversight, this paper stands accredited to Dr. Grew. Winthrop's earlier (1671) paper in the same *Trans.* does not relate exclusively to the Hummingbird.

† The viii. vol., 1812, of Shaw's *Gen. Zool.*, gave 70 species of *Trochilus*.

The first great illustrated work on Hummers exclusively was Lesson's, published in parts, from 1829 to 1832, the parts being afterward grouped in three separately titled volumes. This author described and figured in colors upward of 100 (about 110) species, many of which were actually new, and to many more of which new names were given. A very few genera, additional to or in place of Brisson's, had meanwhile been proposed; but Lesson was the first to introduce any considerable number of new generic names. Many of those, however, which Gray and others have since cited as generic, were certainly not used or intended as such by Lesson, being simply vernacular designations of certain "tribes" and "races" among which he distributed the *Trochilidæ:* such words as "Bleuets" and "Queues étroites", for example. French authors were (and I think many of them still are) such sinners in spelling, that it is not always easy to say what words of theirs they would have us take as technical. Possessing a copious and voluble vocabulary, largely supplemented by gesture-speech, or shrug-language, and violating in their articulation the usual powers of written characters, they not only acquired a trick of Gallicizing technical words, but they also cultivated a characteristic habit of rising superior to orthography. If Vieillot could write *Cripsirina* for *Cryptorhina* without flinching, we need not wonder that Lesson invented *Ornismya*, which he defended as against *Ornithomyia*, or that some of his successors reached the height of *Ornysmia!*

The Hummers have always been objects of study peculiarly agreeable to French ornithologists. Their daintiness, so to speak, seems to suit the national genius. French literature, therefore, figures in the written history of these birds to an extent greater than that observable in any other family of birds. About the time we have reached, however, several English names became prominent in the present connection: as those of Swainson, Vigors, Loddiges, and especially Jardine—for Gould had not then begun the work which was afterward to identify his name with Trochilidine literature. Swainson had already classified the Hummers as a part of his general scheme, describing some new species and establishing certain genera. In 1833, and thus upon the heels of Lesson's memoirs, Sir William Jardine prepared his monography, to the valuable and agreeable text of which Lizars contributed beautiful illustrations. The home of the Hummers was heard from the same year in La Llave's *Memoria;* and Schreibers's *Collectanea* of same date consisted only of these birds. From this time until the beginning of Gould's great work in 1849 appeared no monographic treatise on *Trochilidæ.* But the period was one of great activity, among both English and French writers; the accumulation of material was rapid and incessant, and many papers of these years described new genera and species, though too often hastily and inadequately. In England, Gould and Fraser were busy with their materials. In France, the writings of Lesson continued; Bourcier became prominent in the number of his papers; while Boissoneau, De Lattre, Gervais, Longuemare and others made their respective contributions. This was the period of accumulation rather than of elaboration; numberless new names were introduced, but among them were many synonyms, both generic and specific; little or no systematic revision of the subject being effected, unless Gould's *Draft Arrangement*, the precursor of his *Monograph*, be considered of such character.

The thirteen years, 1849–61, during which Gould's work was pending, marked the next period in the history of the subject. The preparation of this great work held its author, already recognized as the leading Trochilidist, to his subject; and the appearance of successive parts served as a continual stimulus to others to move in the same direction. The author published many papers describing cursorily new objects about to be depicted in his magnificent folios; and several French ornithologists, notably Bourcier and Mulsant, were little behind him in this respect. The period was also marked by the appearance in England of Martin's *General History*, in some sense a continuation of Jardine's work. It was furthermore characterized by the malignant epidemic which we may call the genus-itch; which broke out simultaneously in 1849, from two foci of contagion, in France and in Germany, and proved disastrous in the extreme. The infection reappeared in an aggravated form in 1854, and Trochilidine literature has never entirely recovered from its effect.

Many genera of Hummers, notably Swainson's, Lesson's, and Gould's, had been found acceptable, and, indeed, necessary; but the most embarrassing results attended the steps of some authors who coined names on the glancing of a feather in this beautiful group of birds. As just stated, serious difficulty began in 1849, in those parts of Bonaparte's *Conspectus* and of Reichenbach's *Systema* which treat of *Trochilidæ;* and in 1854 each of these authors increased it immeasurably, the one in his *Tableau*, the other in his *Aufzählung.* But I have on previous pages sufficiently commented upon this matter.

The completion of Gould's splendid monument closed this period of accumulation. The subject had grown rapidly, and had become unmanageable. Some authors had simply amused themselves in "playing chess" with the names of Hummers, and many had pressed forward with new species upon insufficient examination of known material, or inadequate regard for what others had published. The fog of synonymy had completely enveloped the subject. It was hazardous to enter it, and it seemed almost hopeless to attempt to lift it. The *Monograph* represented, therefore, rather a broad and secure basis for future investigation than any final accomplishment. It gave a series of 360 colored plates of about as many species, real or nominal, with accompanying descriptive letter-press; other species added in the *Introduction* raising the total to 416, referred to 123 genera. But many new names, generic and specific, were still to see the light; many others were to sink into synonymy; the nomenclature was till shifting; in short, studious and judicious systematic revision of the whole subject was imperatively demanded. If Gould's work made this necessity apparent, it also immeasurably contributed to the desired result.

Previous to this Gouldian period American writers did next to nothing for the special literature of the family; but during this time, and subsequently, many new species were described by Lawrence. In 1860, and therefore just before the period closed, Germany brought a fascicle of the *Museum Heineanum* to bear upon the subject, many new genera, and some new species being described by Cabanis and Heine. In 1863, the *Trochilidica* of the last-named author appeared in the *J. f. O.*, with a similar result. In 1866, MM. Mulsant and Verreaux's *Essai d'une Classification Méthodique* appeared as the precursor of a more elaborate work then contemplated, containing fresh accessions to the number of genera with which the family was destined to be burdened, and a rearrangement of the whole group. This decade, 1861–70, saw also a fair number of minor papers, calling, however, for no special remark here. It represented flood-tide in the mere describing of species, and their rearrangement in futile genera; the ebb necessarily followed.

The state of the case at that moment was faithfully reflected in Gray's *Handlist.* This catalogued 469 species, real or nominal, distributed in 163 genera or subgenera, and carrying a load of synonymy amounting in the aggregate to perhaps 800 specific and 300 generic names. This, it will be remembered, is irrespective of the endless combinations of generic and specific names, which, were they counted, might represent a total of several thousand binomial names which have been imposed upon a family of birds consisting of few more than 400 known species, conveniently referable to about one-fourth as many modern genera!

Such a state of things as this inevitably tended toward a healthy reaction; and during the last decade, the accessions of new names have been fairly offset by the reduction of others to synonyms. It is true that the *Histoire Naturelle des Oiseaux-Mouches* of MM. Mulsant and Verreaux, and M. Mulsant's *Catalogue*—these being among the most notable publications of this period—can scarcely be regarded as tending in this direction, viewing the many additional new names which they present. Having seen neither of these treatises, I cannot judge of their claims to be considered as advancing or improving the science. But it cannot be doubted that the patient and faithful study which Messrs. D. G. Elliot and O. Salvin have of late applied to the amelioration of Trochilidine affairs has done much toward the needed reform. These skilful ornithologists have published numerous papers reviewing different groups of Hummers, under the most advantageous circumstances as regards handling material and examining literature; and their criticisms have been of the greatest service, not only in defining genera and species, but in sifting synonymy and settling nomenclature. Mr. Elliot's labors have borne their final fruit in his *Classification and Synopsis of the Trochilidæ.* However qualified a success the experts may conclude this performance to be, it is certainly a great boon to the working ornithologist, and a faithful reflection of the present state of our knowledge respecting the exquisite creatures to the elucidation of whose history it is devoted.

With this rapid glance at the origin, progress, and present state of Trochilidine literature, I pass to an alphabetical Index of the Genera of Trochilidæ, the preparation of which has given me no little trouble. I shall not regret the drudgery, however, if the list of names shall seem to bear out and justify the remarks in which I have indulged on this point, and be of any practical use to the working ornithologist. I have taken great pains to make the list complete and accurate, having personally made or verified very nearly every reference, excepting those of Mulsant and Verreaux's *Histoire Naturelle,* and Mulsant's *Catalogue.*

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Orthornis Bp., 1854: *R. M. Z.*, p. 249.
Osalia Muls. and Verr, 1866: *Class. Troch.*, p. 92.
Oxypogon Gould, 1848: *P. Z. S.*, p. 14.

Pampa Reich., 1854: *Aufz. Col.*, p. 11.
Panoplites Gould, 1854: *Monog.*, pt. viii, October.
Panichlora Muls. and Verr. [p. 43.
Panterpe Cab. and Hein., 1860: *Mus. Hein.*, iii,
Panychlora Cab. and Hein., 1860: *Mus. Hein.*, iii,
p. 49.
Paphosia Muls. and Verr., 1866: *Class. Troch.*,
Parzudakia Reich., 1854: *Aufz. Col.*, p. 12. [p. 75.
Patagona Gray, 1840: *List G. of B.*, p. 18.
Patagons Less., 1832: *Ind. Gén.*, p. —.
Peratus Muls., 1875: *Cat. O.-M.*, p. 23.
Petasophora Gray, 1840: *List G. of B.*, p. 13.
Petasophorus Muls. and Verr., 1866.
Phæochroa Gould, 1861: *Introd.*, 8vo, p. 55.
Phæolæma Bp., 1854.
Phæoptila Gould, 1861: *Introd.*, p. 169.
Phaëthornis Sw., 1831: *Fn. Bor.-Am.*, ii, p. 322.
Phaëtornis Bp., 1849: *Consp. Av.*, p. 67.
Phætornis Gray, 1848.
Phaiolaima Reich., 1854: *Aufz. Col.*, p. 9.
Phemonoë Reich., 1854: *Aufz. Col.*, p. 9.
Phœthornis Sw., 1827: *Zool. Journ.*, p. 357.
Phœtornis Less., 1832: *Ind. Gén. Troch.*, p. xiv.
Phætornis Tschudi, 1844: *Consp.*, p. 37. [p. 86.
Philodice Muls. and Verr., 1866: *Class. Troch.*,
Phlogophilus Gould, 1860: *P. Z. S.*, p. 310.
Pholoe Muls., 1875: *Cat. O.-M.*, p. 22.
Phrethornis Boie, 1831: *Isis*, p. 548.
Pilonia Muls., 1876: *Hist. Nat.*, iii, p. 4.
Placophorus Muls., 1873: *Hist. Nat.*, i, p. 137.
Platurus Less., 1829: *Tabl. O.-M.*, p. xxij.
Platystylopterus Reich., 1854: *Aufz. Col.*, p. 11.
Polemistria Cab. and Hein., 1860: *Mus. Hein.*, iii,
Polyæna Hein., 1863: *J. f. O.*, p. 215. [p. 63.
Polyerata Hein., 1863: *J. f. O.*, p. 194.
Polymnia Muls. and Verr., 1866: *Class Troch.*,
Polyonymus Hein., 1863: *J. f. O.*, p. 206. [p. 91.
Polyplancta Hein., 1863: *J. f. O.*, p. 182.
Polythmus Less., 1832: *Ind. Gén. Troch.*, p. xvi.
Polythmus Less., 1832: *Ind. Gén.*, p. xvi.
Polytmus Vieill., 1807.
Polytmus Gray, 1849: *List G. of B.*, p. —.
Polytmus Reich., 1849: *Syst. Av.*, pl. xxxix.
Polytmus Briss., 1760: *Orn.*, iii, p. 666. [p. 123.
Polyxemus Muls., 1877: *Hist. Nat. O.-M.*, iv,
Popelairia Reich., 1854: *Aufz. Col.*, p. 12.
Prasites Gray: *Ubi?*
Prasitis Cab. and Hein., 1860: *Mus. Hein.*, iii, p. 49.
Praxilla Reich., 1854: *Aufz. Col.*, p. 13.
Prognornis Reich., 1854: *Aufz. Col.*, p. 11.
Prymnacantha Cab. and Hein., 1860: *Mus. Hein.*,
iii, p. 64.
Psalidoprymna Cab. and Hein., 1860: *Mus. Hein.*,
Pterophanes Gould, 1849: *Monog.*, pt. i. [iii, p. 72.
Ptochoptera Elliot, 1874: *Ibis*, p. 261.
Ptyonornis Reich., 1854: *Aufz. Col.*, p. 14.
Pygmornis Bp., 1854: *R. M. Z.*, p. 250.
Pygornis Muls. and Verr., 1866: *Class. Troch.*, p. 18.
Pyrrhophæna Cab. and Hein., 1860: *Mus. Hein.*,
iii, p. 35.

Queues-étroites Less., 1832: *Ind. Gén.*, p. xxxi.

Ramphodon Less., 1830: *Hist. Nat. Col.*, p. 18.
Ramphomicron Bp., 1849: *Consp. Av.*, p, 79.
Rhamphodon Less.
Rhamphomicron auct. [iii, p. 70.
Rhamphomicrus Cab. and Hein., 1860: *Mus. Hein.*
Rhodopis Reich., 1854: *Aufz. Col.*, p. 12.
Riccordia Reich., 1854: *Aufz. Col.*, p. 10.
Rubis Less., 1832: *Ind. Gén.*, p. —.

Sæpiopterus Reich., 1854: *Aufz. Col.*, p. 11.
Saphos Less., 1832: *Ind. Gén.*, p. —.
Sapphironia Bp., 1854: *R. M. Z.*, p. 256.
Sapphironia "Gould, 1861".
Sapphironia Bp., 1854: *R. M. Z.*, p. 256.
Saphirs Less., 1832: *Ind. Gén.*, p. —.
Sappho Reich., 1849: *Syst. Av.*, pl. xl.
Saturia Muls., 1875: *Cat. O.-M.*, p. 21.
Saucerottia Bp., 1849: *Consp. Av.*, p. 77.
Schistes Gould, 1851: *Jard. Cont. Orn.*, p. 140.
Selasopheruss Reich., 1855: *Troch. Enum.*, p. 11.
Selasphorus Sw., 1831: *Fn. Bor.-Am.*, ii, p. 496.
Selosphorus Bp., 1849: *Consp. Av.*, p. 82.
Séphaniodes Less., 1832: *Ind. Gén.*, p. xxix.
Sephanoides Bp., 1849: *Consp. Av.*, p. 82.
Sericotes Reich., 1854: *Aufz. Col.*, p. 11.
Smaragdites Less., 1832: *Ind. Gén.*, p. xxix.
Smaragdites Muls. and Verr., 1866.
Smaragdites Boie, 1831: *Isis*, p. 547.
Smaragdites Reich., 1849: *Syst. Av.*, pl. xl.
Smaragdites Boie, 1831: *Isis*, p. 547.
Smaragditis Reich., 1854: *Aufz. Col.*, p. 7.
Smaragdochrysis Gould., 1861: *Introd.*, 8vo, p. 161.
Sparganura Cab. and Hein., 1860: *Mus. Hein.*, iii,
Spathura Gould, 1849: *Monog.*, pt. i. [p. 52.
Sphenoproctus Cab. and Hein., 1860: *Mus. Hein.*,
iii, p. 11.
Sporadicus Cab. and Hein., 1860: *Mus. Hein.*, iii.
Sporadinus Bp., 1854: *R. M. Z.*, p. 255.
Steganura Reich., 1854: *Aufz. Col.*, p. 8.
Steganurus Reich., 1849: *Syst. Av.*, pl. xl.
Stellula Gould, 1861: *Introd.*, 8vo, p. 90.
Stellura Muls. and Verr., 1866: *Class. Troch.*, p. 88.
Sternoclyta Gould, 1858: *Monog.*, pt. xvi.
Stokæsiella Bp., "1854."
Stokosiella Bp., 1854: "*Ann. Sci. Nat.*, p. 138."

Streblorhamphus, Cab. and Hein., 1860: *Mus.*
Strophiolæmus Gould, "1853". [*Hein.*, iii, p. 76.

Telamon Muls. and Verr., 1866: *Class. Troch.*,
Telaphorus Muls., 1874: *Hist. Nat.*, i, p. 257. [p. 75.
Telesiella Reich., 1854: *Aufz. Col.*, p. 13.
Telesilla Cab. and Hein., 1860: *Mus. Hein.*, p. 27.
Thalucania Bourc., 1856.
Thalurania Gould, 1848: *P. Z. S.*, p. 13.
Thaluronia Gray, 1849.
Thaumantias Bp., 1854: *R. M. Z.*, p. 255.
Thaumasius Sclat., 1879: *P. Z. S.*, p. 145.
Thaumaste Reich., 1854: *Aufz. Col.*, p. 14.
Thaumastura Bp., 1849: *Consp. Av.*, p. 85. [1849.
Thaumastura Bp., 1850: *Compt. Rend.*, p. 383, nec
Thaumatias Bp., 1850: *Compt. Rend.*, xxx, p. 382.
Thaumatias Bp., 1849: *Consp. Av.*, p. 78.
Thaumatias Gould, 1861: *Introd.*, 8vo, p. 151.
Thaumatessa Hein., 1863: *J. f. O.*, p. 209.
Tholucania Hartl., 1857: *Arch. f. Nat.*, p. 49.
Threnetes, Gould, 1853: *Monog.*, pt. iv.
Threptria Reich., 1854: *Aufz. Col.*, p. 9.
Tilmatura Reich., 1854: *Aufz. Col.*, p. 8.
Timolia Muls., 1875: *Cat. O.-M.*, p. 23.
Topaza Gray, 1840: *List G. of B.*, p. 13.
Topazes Less., 1832: *Ind. Gén.*, p. —.
Toxoteuches Cab. and Hein., 1860: *Mus. Hein.*, iii,
Tricholopha Hein., 1863: *J. f. O.*, p. 209. [p. 11.
Trochilus Less., 1766: *S. N.*, i, p. 189.
Tryphæna Gould, 1849: *Monog.*, pt. i.

Ulysses Muls., 1875: *Cat. O.-M.*, p. 12.
Uralia Muls. and Verr., 1866: *Class. Troch.*, p. 81.
Urania "Fitz." (*fide* Gray).
Uranomitra Reich., 1854: *Aufz. Col.*, p. 10.
Urochroa Gould, 1856: *Monog.*, pt. xii.
Urolampra Cab. and Hein., 1860: *Mus. Hein.*, iii,
Urosticte Gould, 1853: *Monog.*, pt. vi. [p. 68.

Vestipes Less., 1832: *Ind. Gén.*, p. —.

Zephyritis Muls. and Verr., 1866: *Class. Troch.*,
Zodalia Muls., 1876: *Hist. Nat.*, iii, p. 281. [p. 87.

Cypselidæ.

1793. BRUYN, S. J. A Letter on the Retreat of Swallows [Chætura pelagica], and the Torpid State of certain Animals, in Winter. < *Mem. Amer. Acad. Arts and Sci.*, ii, 1793, pp. 96–99.

This is the earliest notice I have seen of the now well-known fact that immense collections of the bones, feathers, and excrement of Swifts are occasionally found in hollow trees to which the birds have been wont to resort by thousands for a series of years. A late anonymous writer (very well known to me, however,) in the *N. Y. Independent* of Oct. 7, 1875, has a paragraph on the subject, in which he seems inclined to believe that our Chimney Swift may not impossibly hybernate in such retreats. See also 1853, THOMPSON, Z.

1817. S. B. D. To the editors of the American Monthly Magazine. < *Am. Month. Mag.*, ii, 1817, p. 32.

On the débris of *Chætura pelagica* in hollow trees.

1817. WOOD, J. [On the débris of Chætura pelagica in hollow trees.] < *Am. Month. Mag.*, i, 1817, p. 292.

1826. JENNER, —. Annual return of migrating Birds to the same spot. < *Sillim. Am. Journ. Sci.*, x, 1826, p. 192.

From *Brewster's Journal.*

1839. TOWNSEND, J. K Description of a New Species of Cypcelus [Cypcelus vauxii] from the Columbia River. < *Journ. Acad. Nat. Sci. Phila.*, viii, 1839, p. 148.

Citators of this bird's name may observe that Townsend did not call it *Cypselus vauxi.*

1841. JOHNSON, H. Chætura ruficollis [n. sp.]; Cayenne. < *Ann. Mag. Nat. Hist.*, vii, 1841, p. 351.

1845. BRYDGES, H. J. J. Description of a supposed new Swift. < *Zoologist*, iii, 1845, p. 939.

From Jamaica Not named.

1848. STREUBEL, A. B. Die Cypseliden des Berliner Museums. < *Oken's Isis*, Bd. xli, 1848, pp. 348–373.

Monographisch bearbeitet.—*C. parvus* (Licht.), p. 351; *C. caffer* (Licht.), p. 352; *C. abessynicus*, p. 354, sp. n. *Pseudoprocne*, g. n., p. 357. *Hemiprocne torquata*, p. 342, sp. n.; *H. temminckii*, p. 368, sp. n.; *H. fumigatus*, Natt. MS., sp. n., p. 366. *Cypseloides*, g. n., p. 366; *Salangana*, g. n., p. 368; *Chelidonia*, g. n., p. 370; *Hemiprocne fucivora*, p. 369.

1853. THOMPSON, Z. [Remarks on exhibition of a mass of débris of Chætura pelagica from interior of a "Swallow tree" in Vermont.] < *Proc. Boston Soc. Nat. Hist.*, iv, 1853, p. 299.

1857. KENNERLY, C. B. R. Description of a new Species of Cypselus [C. borealis] collected on the North Western Boundary Survey, Archibald Campbell, Esq., Commissioner. < *Proc. Acad. Nat. Sci. Phila.*, ix, 1857, pp. 202, 203.

1863. SALVIN, O. [Panyptila sancti jeromæ, sp. n.] < *Ibis*, v, 1863, p. 239.

Cf. *Panyptila sancti hieronymi*, *P. Z. S.*, 1863, p. 190, pl. 23.

1863. SCLATER, P. L. On the American Spine-tailed Swifts of the Genus Chætura. < *P. Z. S.*, xxvi, 1863, pp. 98–102, pl. xiv, fig. 1.

Synonymatic and diagnostic synopsis, with criticism, of 8 spp. *C. cinireiventris* is figured.

1865. SCLATER, P. L. Notes on the genera and species of Cypselidæ. < *P. Z. S.*, 1865, pp. 593–617, figg. 1–10, pll. xxxiii, xxxiv.

This notable article opens with an account of the structure of the sternum and digits in various species of the family, illustrated with ten figures. The family is divided into two subfamilies, *Cypselinæ* and *Chæturinæ*, the former having the tarsi feathered, and the ratio of the phalanges abnormal; the latter with the opposite of these characters. The species of *Cypselinæ* are all referred to the two genera *Cypselus* and *Panyptila*, the latter exclusively American. The *Chæturinæ* are divided into four genera, *Chætura*, *Cypseloides*, *Collocalia*,

1865. SCLATER, P. L.—Continued.

and *Dendrochelidon*. Forty-eight species, two of them new, are reviewed, with synonymy, diagnosis, habitat, and criticism, as follows:—

CYPSELINÆ. I. *Cypselus*. A. Old World. a. Fork-tailed. 1. *C. melba*. 2. *C. æquatorialis*. 3. *C. apus*. 4. *C. pacificus*. 5. *C. leuconyx*. 6. *C. unicolor*. 7. *C. caffer*. 8. *C. parvus*. 9. *C. batassiensis*. 10. *C. infumatus*, sp. n., p. 602, Borneo. b. Even-tailed. 11. *C. subfurcatus*. 12. *C. affinis*. B. New World (*Tachornis*). 13. *C. phœnicobius*. 14. *C. squamatus* (pl. 33). 15. *C. andicola*. 16. *C. montivagus*. II. *Panyptila*. 1. *P. cayanensis*. 2. *P. sancti-hieronymi*. 3. *P. melanoleuca*. CHÆTURINÆ. III. *Chætura*. A. Majores. a. Asiatic (*Hirundinapus*). 1. *C. caudacuta*. 2. *C. gigantea*. b. American (*Hemiprocne*). 3. *C. semicollaris*. 4. *C. biscutata*, sp. n., p. 609, pl. 34 (e Natt. MS., Brazil). 5. *C. zonaris*. B. Minores. a. American. 6. *C. pelasgia*. 7. *C. vauxii*. 8. *C. poliura*. 9. *C. cinereiventris*. 10. *C. spinicauda*. 11. *C. rutila*. b. African. 12. *C. sabini*. 13. *C. cassini*. c. Asiatic. 14. *C. sylvatica*. 15. *C. coracina*. IV. *Cypseloides*. 1. *C. senex*. 2. *C. fumigatus*. 3. *C. niger*. 4. *C. borealis*. V. *Collocalia*: merely a list of 6 spp., after Wallace. VI. *Dendrochelidon*. 1. *D. mystacea*. 2. *D. wallacii*. 3. *D. klecho*. 4. *D. coronata*. 5. *D. comata*.

1865. SCLATER, P. L. [Letter relating to various Cypselidæ.] <*Ibis*, 2d ser., i, 1865, pp. 234, 235.

1867. SCLATER, P. L. Bemerkungen über die Genera und Species der Cypseliden. Aus den „Proceedings of the Zoological Society of London, June 27, 1865" übersetzt. <*J. f. O.*, xv, 1867, pp. 112–141.

1869. FOWLER, A. The Chimney Swallow [Chætura pelagica]. <*Am. Nat.*, iii, 1869, pp. 8–13.

Account of its habits.

1873. SEARS, J. H. Chimney Swallow [Chætura pelagica]; Change in Place of Nesting. <*Am. Nat.*, vii, 1873, pp. 751, 752.

1874. MERRIAM, C. H. The Chimney Swift [Chætura pelagica]; Change in Place of Nesting. <*Am. Nat.*, viii, 1874, pp. 367, 368.

1874. SALVIN, O. [On the breeding of Panyptila sancti-hieronymi at San Geronimo, Guatemala; etc.] <*Ibis*, 3d ser., iv, Apr., 1874, p. 188.

Not seen.

1875. ANON. [On the possible hybernation of Chætura pelagica in hollow trees.] <*N. Y. Independent*, Oct. 7, 1875.

1877. GRAY, A. F. Chimney Swallow. Chimney Swift. Chætura pelagica.—Baird. <*Forest and Stream*, ix, Nov. 8, 1877, p. 215.

1878. [FITCH, E. H.] The Swifts [Cypselidæ]. *Journ. of Sci.* (Toledo, Ohio), n. s., i, No. 1, Apr., 1878, cut.

Characters of two subfamilies, *Cypselinæ* and *Chæturinæ*; figure of *Panyptila saxatilis*.

1878. LAWRENCE, G. N. Description of a New Species of Cypselidæ, of the Genus Chaetura [dominicana]. <*Ann. New York Acad. Sci.*, i, No. 8, 1878, pp. 255, 256. (Read Nov. 11, 1877.)

1879. ANON. Nest of the Chimney Swift (Chætura pelasgia). <*The Oölogist*, v, No. 2, Aug., 1879, pp. 9, 10, cut.

Very good original observations, illustrated with a figure of the nest and eggs.

1879. MERRIAM, [C. H.] How the Chimney Swallows [Chætura pelagica] did Congregate. <*The Oölogist*, v, No. 1, July, 1879, pp. 6, 7.

Quoted from his "Review of the Birds of Connecticut" in *Trans. Conn. Acad.*, iv, 1877, p. 59.

Caprimulgidæ.

1817. HUMBOLDT, A. v. Sur le Steatornis [caripensis], nouveau genre d'Oiseau nocturne. < *Bull. Sci. Soc. Philom*, 1817, pp. 51, 52.

Pas vu moi-même—le titre tiré de Carus et Engelmann.

1818. HUMBOLDT, A. v. [Ueber einen Nachtvogel Guacharo genannt (d. h., Steatornis caripensis).] < *Oken's Isis*, Jahrg. ii, 1818, p. 411.

Aus d. *Verh. Acad. Wiss. Paris*, 1817.

1831. SW[AINSON, W.] The pectinated Claw of the Goatsucker. < *Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 275, 176.

Smiles at the simplicity of J. Rennie in supposing the comb useful in removing insect parasites.

1831. ANON. The Night Hawk [Chordeiles virginianus]. < *D. J. Browne's The Naturalist*, i, No. x, Oct., 1831, pp. 301–309.

Chiefly compiled from Wilson. The article continues with a similar notice of the Whip-poorwill, *Antrostomus vociferus*.

1831. ANON. The Whip-poor-will [Antrostomus vociferus] and Night Hawk [Chordeiles virginianus]. < *D. J. Browne's The Naturalist*, i, No. xi, Nov., 1831, pp. 334, 335.

Determining that these are really two distinct species.

1832. WATERTON, C. Answer to the Question at p. 603 [tom. cit.] on the Nightjar's [Caprimulgus europæus] transporting its Eggs, as suggested by Audubon's declaration of the Carolina Goatsucker's [Antrostomus carolinensis] so doing. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 726, 727.

1834. L'HERMINIER, [F.] Mémoire sur le Guacharo (Steatornis caripensis (Humboldt)). < *Nouv. Ann. du Mus. d'Hist. Nat.*, iii, 1834, pp. 321–331, pl. 15.

Planche coloriée, in-fol., grosseur nat.—Rapport: *L'Inst.*, ii, 1834, No. 74, p. 330.

1834. MATHEWS, A. Information on the Habits of a Species of Caprimulgus (or of some closely allied Genus) which inhabits the Neighbourhood of Lima. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 633, 634. With Note by the Editor, pp. 634–637.

1835. DON, D. The Species of Caprimúlgus which inhabits the Neighbourhood of Lima, noticed by Mr. Matthews in [op. cit.] VII. 633., and technically described in 635., is, doubtless, the C. americànus of Wilson's "American Ornithology," vol. V. t. 40. fig. 1. < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 470.

Which it doubtless is not.

1836. L'HERMINIER, [F.] Note additionelle au mémoire sur le Guacharo de la caverne de Caripe (Steatornis Caripensis. Humb.) < *Compt. Rend. de l'Acad. Sci.*, ii, 1836, pp. 67–71.

1836. L'HERMINIER, F. Note sur le Guacharo de la caverne de Caripe (Steatornis caripensis Humb.). < *Ann. Sci. Nat.*, 2^e^ sér., Zool., vi, pp. 60–64.

Not seen—this vol. missing from the set of the *Ann.* handled. Paper said to be also in *Fror. Nat.*, Bd. 1, No. 1082, 1836, pp. 49–51.

1836. ROULIN, —. Existence du guacharo [Steatornis caripensis] dans la province de Bogota. < *Compt. Rend. de l'Acad. Sci.*, ii, 1836, pp. 94–96.

Extraite d'une lettre. (*L'Inst.*, iv, No. 168, 1836, pp. 241, 242; *Ann. Sci. Nat.*, 2^e^ sér., vi, 1836, pp. 115–117.)

1838. GOULD, J. Icones Avium, | or | Figures and Descriptions | of | new and interesting Species of Birds | from various parts of the World. | By | John Gould, F. L. S., &c. | Forming | a supplement | to his previous works. | — | Part II. | — | Monograph of the Caprimulgidæ, | Part I. | [Contents.] | London: | printed by Richard and John E. Taylor, Red Lion Court, Fleet Street. | Pub-

1838. Gould, J.—Continued.
lished by the author, 20, Broad Street, Golden Square. | August, 1838. folio, 8 plates, unnumbered, each with a sheet of letterpress, unpaged.

Part I contained 10 plates of miscellaneous birds. The present Part begins a monograph which was abandoned. Only these two parts of "Icones Avium" appeared.

This beginning of a monograph of the *Caprimulgidæ* contains: 1. *Amblypterus anomalus.* 2. *Nyctidromus derbianus.* 3. *Semeiophorus* (*Macrodipteryx ?*) *vexillarius.* 4. *Lyncornis cervinĭceps.* 5. *Lyncornis macrotis.* 6. *Lyncornis temminckii.* 7. *Batrachostomus* (Gould, g. n. ?) *auritus.* 8. *Nyctibius pectoralis.*

1838. Saint-Vincent, Bory de. Sur l'existence du Guacharo (Steatornis [caripensis]), à l'île de la Trinité. < *Compt. Rend. de l'Acad. Sci.*, vii, 1838, pp. 474–478.

D'après une lettre de M. Hautessier. Avec des renseignements sur les mœurs de l'oiseau.

1839. Hautessier, St. Cyr. Notice historique sur l'existence du Guacharo [Steatornis caripensis] qui a été découvert dans les cavernes des Bouches à la Trinidad. < *Actes Soc. Linn. Bordeaux*, xi, 1839, pp. 98– —.

Pas vue moi-même—le titre tiré de Giebel.

1839. Hautessier, [St. Cyr.] [Ueber Steatornis caripensis, mit Nest und Eyern, aus Trinidad.] < *Oken's Isis*, Bd. xxxii, 1839, pp. 382, 383.

L'Institut, Nr. 249, 1838, p. 326.

1842. Lafresnaye, [F. de.] Ueber die Caprimulgiden. < *Oken's Isis*, Bd. xxxv, 1842, p. 219.

Mag. de Zoöl., Bd. iii, 1837.

1842. Mueller, J. Anatomische Bemerkungen über den Quacharo, Steatornis caripensis v. Humb. < *Müller's Arch. Anat. Phys.*, ix, 1842, pp. 1–11, pl. 1.

Gelesen in d. k. Akad. Wiss. zu Berlin am 13. Mai 1841. *Berlin. Monatsb.*, 1841, pp. 172–179; *L'Inst.*, ix, No. 408, 1841, p. 357.

1843. Des Murs, O. Considérations oologiques sur le genre d'oiseaux nommé Guacharo. (Steatornis de Humbold [sic]). < *Revue Zoologique*, vi, 1843, pp. 33–37.

1844. Funck, N. Notice sur le Steatornis caripensis. < *Bull. Acad. Bruxelles*, xi, 1844, pp. 371–377.

L'Institut, xiii, 1845, No. 598, pp. 216, 217.

Pas vue moi-même—le titre tiré de la *Bibl.* de Carus et Engelmann. La notice se trouve aussi inserée dans l'*Isis* d'Oken, 1848, *q. v.*

1846. Gould, J. [On a new species of Nyctibius (bracteatus).] < *P. Z. S.*, xiv, 1846, p. 1.

1846. Gould, J. [Nyctibius bracteatus.] < *Ann. Mag. Nat. Hist.*, xvii, 1846, p. 476.

From *P. Z. S.*, Jan. 13, 1846, p. 1.

1846. L'Herminier, [F.] Ueber Steatornis caripensis in der Provinz Cumana. < *Oken's Isis*, Bd. xxxix, 1846, p. 552.

Nouv. Ann. Mus. d'Hist. Nat., Tom. iii, 1834, pp. 321–331, pl. 15.

1846. Reichenbach, [L.]. Neuer Caprimulgus in Ungarn. < *Allgemein. Naturh. Zeitung*, 1846, pp. 269– —.

Not seen. Said to contain a list of the known species of *Caprimulgidæ*. *Chordeiles wiederspergii*, sp. n., p. —.

1848. Cabot, S., Jr. [On a species of Chordeiles from Surinam (C. labeculatus ?)] < *Proc. Bost. Soc. Nat. Hist.*, iii, 1848, pp. 55, 56.

1848. Funck, N. Ueber den Guacharo (Steatornis caripensis). < *Oken's Isis*, Bd. xli, 1848, pp. 1018, 1019.

Auszug aus d. *Bull. Acad. Roy. Bruxelles*, xi, 1844, pp. 371–377.

1849. Cassin, J. Descriptions of new species of birds of the Family Caprimulgidæ, specimens of which are in the Collection of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iv, 1849, pp. 236–239.

Hydropsalis limbatus, p. 236; *H. segmentatus*, *Antrostomus serico-caudatis* (sic), p. 238.

1849. L'Herminier, [F.] Notes sur la classification méthodique du Guacharo (Steatornis [caripensis]), . . . < *Rev. et Mag. de Zool.*, xii, (2^e sér., i), 1849, pp. 321–328.

1850. Cassin, J. Descriptions of new species of Birds of the Family Caprimulgidæ. < *Ann. Mag. Nat. Hist.*, 2d ser, v, 1850, pp. 310–313.

From *Proc. Phila. Acad.*, iv, 1849, pp. 236–239.

1851. Cassin, J. Catalogue | of the | Caprimulgidæ | in the collection of | the Academy of Natural Sciences | of Philadelphia. *Published with Proc. Acad. Nat. Sci. Phila.*, v, Nov. 1, 1851, not paged. Also separate, 8vo, one signature (foll. 8).

Synonymatic.

1851. Cassin, J. Notes of an examination of the Birds composing the family Caprimulgidæ, in the Collection of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, v, 1851, pp. 175–190.

Stenopsis, p. 179; *Lurocalis*, p. 189, gg. nn. The 'notes' are a critical running commentary on all the New World forms, with mention of all the species which had come under the writer's observation. An early, if not the first notice of the special subject at all to be called critical.

1852. Cassin, J. Monograph of the Birds composing the genera Hydropsalis, Wagler, and Antrostomus, Nuttall. < *Journ. Acad. Nat. Sci. Phila.*, ii, pt. ii, Jan. 1852, art. xiv, pp. 113–124, pll. xiii, xiv.

Hydropsalis, 6 + 1 spp. Pl. xiv gives sections of tail-feathers of *H. limbatus*, *H. lyra*, *H. segmentatus*, *H. psalurus*. *Antrostomus*, 6 + 2 spp. Pl. xiii, *A. serico-caudatus.*

1854. Brewer, T. M. [Remark on exhibition of an egg of the Chuck-will's-widow (Antrostomus carolinensis).] < *Proc. Bost. Soc. Nat. Hist.*, v, 1854, p. 56.

1858. Bolle, K. Drei Ziegenmelker [Caprimulgidæ] Nordamerikas. < *Naumannia*, viii, 1858, pp. 150–163.

Aus dem Englischen des Audubon—*Caprimulgus* [*Antrostomus*] *carolinensis*, *C.* [*A.*] *vociferus*, *C.* [*Chordeiles*] *virginianus.*

1860. Hadfield, H. Note on the Piramidigs of Jamaica (Chordeiles). < *Zoologist*, xviii, 1860, p. 6976.

1860. Philippi, R. A., *and* Landbeck, L. Beschreibung zweier neuen Chilenischen Vögel aus den Geschlechtern Procellaria und Caprimulgus. < *Arch. f. Naturg.*, 1860, (1), pp. 279–284.

Caprimulgus andinus, p. 270; *Thalassidroma segethi*, p. 282.

1861. Gould, J. Description of a New Species of the Family Caprimulgidæ [Chordeiles? pusillus]. < *P. Z. S.*, xxix, 1861, p. 182.

1861. Gould, J. Description of a New Species of the Family Caprimulgidæ. < *Ann. Mag. Nat. Hist.*, 3d ser., viii, 1861, p. 262.

From *P. Z. S.*, April 23, 1861, p. 182.

1861. Philippi, R. A., *and* Landbeck, L. Descripcion de una nueva especie de pájaros del jénero Chotacabra o Caprimulgus [andinus, p. 31]. < *Anales Univ. Chile*, xviii, Enero 1861, pp. 29–33.

1865. Pelzeln, A. v. Ueber zwei neue Caprimulgiden aus Brasilien. < *Verhandl. d. k.-k. zool.-bot. Ges. zu Wien*, xv, 1865, *Abhandl.*, pp. 985–988.

Hydropsalis ypanemæ (Natt.) und *H. pallescens* (Natt.).

1866. Pelzeln, A. v. Zwei neue Caprimulgiden aus Brasilien. < *J. f. O.*, xiv, 1866, pp. 46–49.

Aus *Verh. k.-k. Zool.-bot. Ges. Wien*, xv, 1865, *Abhandl.*, pp. 985–988. *Hydropsalis ypanemæ*, *H. pallescens.*

1866. Sclater, P. L. Notes on the American Caprimulgidæ. < *P. Z. S.*, xxxiv, 1866, pp. 123–145, pll. xiii, xiv, woodcc.

This is the most important paper on the special subject, being a monographic sketch of the group, with reference to classification as based upon anatomical structure, to geographical distribution, and to the determination of the genera and species. After referring to the leading authorities upon the subject, the writer remarks upon the whole family and its geographical distribution, and proposes to divide it into two sections, readily distinguished by the structure of the feet. In one of the these, *Caprimulginæ* proper, the outer digit has only four phalanges, and the claw of the third or middle digit is pectinated; while in the other the same claw is not peculiar, and the fourth digit has the usual number of phalanges, five. The sternum also offers important characters, as was shown by Blanchard. (*Ann. du Mus.*

1866. Sclater, P. L.—Continued.

xi, 1859, pp. 104–108.) The anatomical characters in mention are figured in the woodcuts, pp. 124–126. *Podargus* and allied forms, such as *Nyctibius*, may require to be separated as a distinct family. The *Caprimulgidæ* are divided upon the foregoing considerations into 3 subfamilies: 1, *Podarginæ* (*Podargus*, *Batrachostomus*, *Ægotheles*, *Nyctibius*); 2, *Steatornithinæ* (single genus); 3, *Caprimulginæ*, (*a*) *Glabrirostres* (*Podager*, *Lurocalis*, *Chordiles*, *Lyncornis*, *Eurystopodus*), and (*b*) *Setirostres* (*Caprimulgus*, *Scotornis*, *Macrodipteryx*, *Antrostomus*, *Stenopsis*, *Hydropsalis*, *Heleothreptus*, *Nyctidromus*, *Siphonorhis*). The American forms are treated in a synonymatic and diagnostic list of 42 spp., with critical and biographical remarks, and a table of geographical distribution.—*Stenopsis ruficervix*, sp. n., p. 140, pl. xiv; *Antrostomus parvulus* Gould, pl. xiii.

The paper is translated in *J. f. O.*, 1867, pp. 252–278.

1866. Sclater, P. L. Additional Notes on the Caprimulgidæ. < *P. Z. S.*, xxxiv, 1866, pp. 581–590, pll. xlv, xlvi.

In continuation of *P. Z. S.*, 1866, pp. 123–145, *q. v.* Anatomy of *Podargus.*—*Antrostomus ornatus*, p. 586, pl. 45; *S. langsdorfi* Pelz., *S. platura* Pelz., p. 589, spp. nn. Pl. 46 represents *Antrostomus maculicaudus*. *Stenopsis leucura* (V.) renamed *S. candicans* Pelz., p. 588.

1867. Sclater, P. L. Bemerkungen über die amerikanischen Caprimulgiden. (Uebersetzt aus den P. Z. S., 27 Feb. 1866.) < *J. f. O.*, xv, 1867, pp. 252–278.

Vergleich d. Originalausgabe, *l. c.*, 1866.

1868. Moore, N. B. Note on Chordeiles virginianus. < *Proc. Bost. Soc. Nat. Hist.*, xii, 1868, p. 127.

Occurrence of a pebble "of considerable size" in its stomach.

1868. Salvadori, T. Due nuove specie di uccelli della famiglia dei Caprimulgidi. < *Atti della Soc. Ital. di Sci. Naturali*, xl, fasc. iii, Sept. 16, 1868, pp. 447 – —.

Stenopsis macrorhyncha, *Scotornis nigricans*, both from South America. I cannot give the pages, as I have only seen repaged oversheets. 8vo. pp. 4.

1868. Sclater, P. L. [Exhibition of the egg of the Guacharo (Steatornis caripensis).] < *P. Z. S.*, xxxvi, 1868, pp. 73, 74.

1869. Goering, A. Escursion a algunas cuevas hasta ahora no esploradas, (al sureste de Caripe.) < *Vargasia*, núm. 5, 1869, pp. 124–128, con una lámina.

Una visita á la célebre Cueva del Guáchero (*Steatornis caripensis*). Cf. *Ibis*, 1870.

1869. Hepburn, J. [Identifies the "booming swallow" (cf. Ibis, 1867, 126) with Chordeiles virginianus.] < *Ibis*, v, 2d ser., 1869, pp. 126, 127.

1869. König-Warthausen, R. Bemerkungen über die Fortpflanzung einiger Caprimulgiden. < *J. f. O.*, xvi, 1868, pp. 361–388, pl. ii, f. 3. (Publicirt 1869.)

The concluding Heft of the Journ. for 1868 was not published till May, 1869. Cf. *Zool. Rec.* for 1868, p. 29; for 1869, 56.

The plate represents eggs of *Stenopsis bifasciatus*.

The paper is an interesting one, with much on the literature of the subject, and very full treatment of 28 spp., "According to the colour of the Eggs the birds may be arranged in *four* groups—those laying (1) glossy eggs with a white ground, blotched with brownish- or bluish-gray, (2) very glossy eggs with a greenish-white ground, spotted and streaked with greenish-brown and gray, (3) dull and delicate eggs with a pale reddish cream-coloured or lively-flesh-coloured ground marked with yellowish-red and violet-grey, and (4) unspotted eggs more or less white. The first of these is the prevailing type, especially in the northern hemisphere and the temperate districts of the Old World; the second is the northern type of the New World; the third the southern type, especially in the New World, and the fourth the Polynesian type, which is special for the *Podarginæ* and *Steatornithinæ*. The accounts of the different species are given in much detail and with great apparent accuracy." (*Zool. Rec.*, 1869, p. 57.)

1870. Pelzeln, A. v. [Rectification of Zool. Record, v, p. 74, in respect of certain Neotropical Caprimulgidæ.] < *Ibis*, 2d ser., vi, 1870, p. 296.

1871. "Fairfax." The Notes of the Whipporwill [Antrostomus vociferus]. < *Am. Nat.*, v, 1871, pp. 438, 439.

1873. Brewer, T. M. Color of the Eggs of Caprimulginæ. < *Am. Nat.*, vii, July, 1873, pp. 434, 435.

With reference to a statement made by E. Coues, *tom. cit.*, p. 325.

1873. Garrod, A. H. On some Points in the Anatomy of Steatornis. < *P. Z. S.*, June 3, 1878, pp. 526–535, figg. 1–4.

Relating almost entirely to the pterylosis (figured) and the anatomy of the soft parts, especially the digestive organs, trachea, carotid arteries and certain muscles, the skull being also described and figured so far as to make it comparable with those in Huxley's paper on the classification of birds (*P. Z. S.*, 1867). The article is an important one. The pterylosis more closely resembles that of the *Strigidæ* than that of the *Caprimulgidæ*, and the genus should be made the type of a distinct family.

1873. Murie, J. Fragmentary Notes on the Guacharo or Oil-Bird (Steatornis caripensis). < *Ibis*, 3d ser., iii, 1873, pp. 81–84.

A 'scrupulously exact' description of the outside of the bird.

1873. Scott, D. [W.] The North American Goatsuckers [Caprimulgidæ]. < *Am. Nat.*, vii, 1873, pp. 669–675.

Biographical notes, with analytical synopsis of the species.

1878. [Fitch, E. H.] The Whippoorwill. (Antrostomers Vocifereus [sic].) < *The Journ. of Sci.* (Toledo, Ohio), 2d ser., i, No. 4, July, 1878, suppl. sheet, cut.

Popular biography of the bird, with a figure.

1878. Rockwell, C. A Tough Young Night Hawk [Chordeiles virginianus]. < *Forest and Stream*, xi, Aug. 22, 1878, p. 46.

Chordeiles virginianus hatching from an egg which had been broken and "stirred up" by the writer.

1879. [Fitch, E. H.] The Night Hawk [Chordeiles popetue]. < *The Journ. of Sci.* (Toledo, Ohio), 2d ser., i, No. 11, Feb., 1879, cut.

Popular biography, with a figure.

1879. Maynard, C. J. Nest of the Chuck-will's-widow [Antrostomus carolinensis]. < *The Oölogist*, v, No. 1, July, 1879, p. 2.

Todidæ.

1833. LAFRESNAYE, F. DE. Sur le genre Todier, Todus. L. < *Guér. Mag. de Zool.*, 3e année, 1833, classe ii, notice xi, pl. xi.

Todus viridis Gm., pl. xi.

1842. LAFRESNAYE, F. DE. [Ueber Todus.] < *Oken's Isis*, Bd. xxxv, 1842, p. 56.

Mag. de Zool., iii, 1833.

1847. LAFRESNAYE, F. DE. Mélanges ornithologiques sur le Todier vert, Todus viridis des auteurs. < *Revue Zoologique*, x, 1847, pp. 326–333.

4 spp.—*TT. viridis, dominicensis, portoricensis, mexicanus.*

1851. LAFRESNAYE, F. DE. Mélanges ornithologiques.—Sur une nouvelle espèce de Todier (Todus [augustirostris]). < *Rev. et Mag. de Zool.*, iii, 1851, pp. 477–479.

1872. MURIE, J. On the skeleton of Todus, with Remarks as to its Allies. < *P. Z. S.*, May 21, 1872, pp. 664–680, pl. lv, 20 figg.

Describes in great detail the skeleton of *Todus viridis*, and shows that the bird is a Coccygomorph, its nearest living allies being the *Momotidæ* and *Alcedinidæ*, but having also Muscicapine, Meropine, Galbuline, and Bucconine tendencies, as shown by its habits, food, and other peculiarities.

"It may be presumed that *Todus* comes of Halcyonine lineage, though its organization places it in juxtaposition with the Motmots. It moreover offers structure so truly Passerine as to mask its more direct allies; and such exterior points deceived the older naturalists or were too strongly insisted upon." A very elaborate and philosophical memoir.

1872. SCLATER, P. L. Observations on the Systematic Position of the Genera Peltops, Eurylæmus, and Todus. < *Ibis*, 3d ser., ii, Apr., 1872, pp. 177–180, figg. 1–4.

I. That *Peltops* should be referred to the family *Muscicapidæ*. II. That the *Eurylæmidæ* should be assigned to the order *Passeres*. III. That the *Todidæ* should be constituted a family of *Coccygomorphæ*, in the immediate neighbourhood of the *Momotidæ*.

1874. SHARPE, R. B. On the Genus Todus. < *Ibis*, 3d ser., iv, 1874, pp. 344–355, pl. xiii.

Chronological summary of literature of the subject: synonymatic, descriptive, etc., synopsis of 5 spp. *Todus pulcherrimus*, p. 353, pl. xiii, f. 3, sp. n. Pl. xiii, figg. 1, 2, *T. subulatus*.

Momotidæ.

1841. JARDINE, W. Horæ Zoologicæ. No. III. On the History and Habits of the Birds composing the Genus Prionites of Illiger. < *Ann. Mag. Nat. Hist.*, vi, 1841, pp. 321–328, figg.

1841. LESSON, R. P. Description des Oiseaux du genre Momot Briss. < *Actes Soc. Linn. de Bordeaux*, xii, 1841, pp. 187– —.

Pas vue moi-même. Titre tiré de Carus et Engelmann.

1843. CABOT, S., JR. [Momotus yucatacensis, sp. n., from Yucatan.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1843, p. 156.

This was subsequently identified with *M.* (*Eumomota* Scl. 1857) *superciliaris* Sandb.

1849. STRICKLAND, H. E. Momotus gularis, Lafresnaye. < *Jard. Contrib. Orn.*, 1849, p. 33, pl. xvii.

1851. SCHOMBURGK, R. Prionites Momota, Ill. < *Naumannia*, i, Heft iv, 1851, pp. 21–24.

Aus der Leben.

1853. SCLATER, P. L. Notes sur deux novelles espèces du genre Momot (momotus). < *Rev. et Mag. de Zool.*, v, 1853, pp. 489, 490.

Momotus semirufus, *M. subrufescens*, p. 489.

1854. GOULD, J. Description of a New Species of Momotus [castaneiceps]. < *P. Z. S.*, xxii, 1854, p. 154.

1855. GOULD, J. Description of a New Species of Momotus. < *Ann. Mag. Nat. Hist.*, 2d ser., xvi, 1855, pp. 273, 274.

From *P. Z. S.*, July 25, 1854, p. 154.

1857. SCLATER, P. L. Review of the species of the Fissirostral Family Momotidæ. < *P. Z. S.*, xxv, 1857, pp. 248–260, pl. (Aves) cxxviii.

4 genera, 17 spp., and 4 others doubtful. *Eumomota*, p. 257, g. n. *Momotus microstephanus*, *M. nattereri*, p. 251, spp. nn. A very complete account of the group. The pl. represents *Prionirhynchus carinatus*.

1863. SCHLEGEL, H. Momotus. < *Mus. Hist. Nat. Pays-Bas.*, 4ᵉ livr., Juil., 1863, pp. 1–8.

The group here treated is made to consist of the *Momotidæ* and *Todidæ* of authors; there are given 13 spp. of the single genus *Momotus*, and 2 of *Todus*.

1872. MURIE, J. On the Motmots [Momotidæ] and their Affinities. < *Ibis*, 3d ser., ii, 1872, pp. 383–412, pll. xiii–xv.

I. Skull and sternum of *Momotus lessoni*. II. Cranium, etc., of *M. brasiliensis*. III. Osteology of *M. ruficapillus*. IV. *Eumomota superciliaris*—skeleton generally. V. The alliances of the *Momotidæ* osteologically considered. (These are with the *Todidæ*, the two families constituting a section of Syndactyle birds proposed to be called *Serratirostres*.) VI. Compendium of facts and opinions on the Motmots. VII. Conclusions derivative from data given. Pls. xiii–xv represent anatomical details and bills.

"Describes the skull and sternum of *Momotus lessoni*, and in detail the skeleton of *Baryphthengus ruficapillus* and *Eumomota superciliaris*. A comparison is then made of the osteology of the *Momotidæ* with that of the *Todidæ*, *Coraciidæ*, *Meropidæ*, *Alcedinidæ*, and other families; and after a consideration of various facts as to habits, structure, and geographical distribution, and of opinions as to their supposed affinities, arrives at the conclusion that the four families just named best accord with the *Momotidæ*, and of them the *Todidæ* are most akin. If it is necessary to group them more nearly, Mr. Blyth's term "Serratirostres" (*Mag. Nat. Hist.*, new ser., ii, p. 422) may be used. Only four genera of *Momotidæ* (*Momotus*, *Baryphthengus*, *Hylomanes* and *Eumomotus*) seem well established." (*Zool. Rec.*)

1873. SALVIN, O. On the Tail-Feathers of Momotus. < *P. Z. S.*, 1873, pp. 429–433, figg. 4.

Mode of formation of the "racket"; cf. *Ibis*, 1872, p. 383. The birds are stated to nibble the feathers.

1878. GARROD, A. H. On the Systematic Position of the Momotidæ. < *P. Z. S.*, Jan., 15, 1878, pp. 100–102, figg. A, B.

Cf. *P. Z. S.*, 1874, p. 123: errors there made here corrected. Colic cœca absent; minute tuft on oil-gland, or none. Such being the case, *Momotidæ* must be placed with the *Piciformes* as defined by Garrod, instead of with *Passeriformes*. *Momotidæ* scarcely separable as a family from *Todidæ*. A pterylographic peculiarity favors the reference of the family to *Piciformes*. Syrinx of *Momatus lessoni* figured, 2 views.

Trogonidæ.

1832. La Llave, Pablo de. Memoria sobre el Quetzaltototl, género nuevo de Aves [Pharomachrus mocinno, g. sp. n.]. < *Registro Trimestre* (Mexico), i, núm. 1, Enero de 1832, pp. 43–49.

1833. Gould, J. [Description of the Female of Trogon pavoninus, Spix.] < *P. Z. S.*, i, 1833, p. 107.

1834. Gould, J. [Characters of three New Species of Trogon (T. erythrocephalus, T. malabaricus, and T. elegans) in the Collection of the Society.] < *P. Z. S.*, ii, 1834, pp. 25, 26.

1834. Gould, J. [Description of Trogon pavoninus, ♀.] < *Lond. and Edinb. Philos. Mag.*, iv, 1834, pp. 59, 60.

From *P. Z. S.*, Sept. 10, 1833, p. 107.

1835. Gould, J. [Characters of several New Species of Trogon (Trogon resplendens, T. ambiguus, T. citreolus).] < *P. Z. S.*, iii, 1835, pp. 29, 30.

1835. Gould, J. [On Trogonidæ.] < *Lond. and Edinb. Philos. Mag.*, vii, 1835, p. 226.

From *P. Z. S.*, Mar. 10, 1835, pp. 29–30.

1835. Gould, [J.] Viele Vögel. < *Oken's Isis*, Bd. xxviii, 1835, pp. 1024, 1025.

Proc. Zool. Soc. Lond., 1834, p. 25. *Trogon erythrocephalus*, *T. malabaricus*, *T. elegans*.

1836. Gould, J. [Exhibition of Trogon resplendens and T. pavoninus.] < *P. Z. S.*, iv, 1836, p. 12.

1837. Bonaparte, C. L. [On the Habits of the Long-tailed Trogon (Trogon resplendens, Gould).] < *P. Z. S.*, v, 1837, p. 101.

1837. Gould, [J.] Ueber Trogon. < *Oken's Isis*, Bd. xxx, 1837, pp. 121, 122.

Proc. Zool. Soc. Lond., 1835, p. 29. *Trogon resplendens*, *T. ambiguus*, *T. citreolus*.

1837. Orbigny, A. d'. Couroucou. Trogon. Linnee. Antisien. Antisianus. D'Orb. < *Guér. Mag. de Zool.*, 7e année, 1837, classe ii, notice lxxxv, pl. lxxxv.

1838. Blyth, E. [Observations on the Structure of the Feet of the Trogonidæ.] < *P. Z. S.*, vi, 1838, p. 20.

1838. Bonaparte, C. L. Dell' Uccello messicano quezalt e dei Trogonidi cui appartiente. < *Nuovi Ann. Sci. Nat. Bologna*, ii, 1838, pp. 5–12.

Trogon paradiseus, "nob.", p. 6.—Caratteri della famiglia e della sottofamiglia, p. 8.—Caratteri di ciascuno dei cinque generi *Trogon*, *Harpactes*, *Apaloderma*, *Temnurus*, *Calurus*, p. 10.

1838? Bonaparte, C. L. Dell' Uccello Messicano | Quezalt | e dei Trogonidi | cui Appartiene | di Carlo Luc. Bonaparte | principe di Musignano | Memoria estratta | dal 7.° fasc. dei nuovi annali delle Scienze Naturali | n. d. n. p. 8vo. pp. 10.

1838. Bonaparte, C. L. Observations on the Long-tailed Trogon [T. paradiseus]. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 229–231.

1838. Gould, J. [Trogon resplendens et pavonicus.] < *Oken's Isis*, Bd. xxxi, 1838, p. 172.

Auszüge aus *Proc. Zool. Soc. Lond.*, iv, 1836, p. 12.

1838. Gould, J. A monograph of the Trogonidæ, or family of Trogons. London. 1838. 1 vol. imp. folio. pll. 38.

This is the date of completion of the orig. ed. of the monograph, a copy of which I have yet to see. Nor can I now give dates of the 3 parts in which it appeared. There is a 2d ed., a very different publication, 1868–75, *q. v.*

1839. Bonaparte, C. L. Ueber den mexicanischen Vogel Quezalt aus der Gruppe der Trogoniden. < *Oken's Isis*, Bd. xxxii, 1839, pp. 611–614.

Uebersetz. aus *Nuovi Annali delle Seienze naturali*, *Bologna* ii, 1838, pp. 5–12.

1841. Clarke, C. [Exhibition of Trogon temnura.] < *P. Z. S.*, ix, 1841, p. 53.

1842. Gould, J. On two new Species of Trogon and a new species of Toucan from the Cordillerian Andes. < *Ann. Mag. Nat. Hist.*, ix, 1842, pp. 236–239.

Trogon personata, p. 237; *T. auriceps*, p. 238; *Pteroglossus castaneorhynchus*, p. 238.

1843. Lattre, A. de. Note sur les mœurs du Couroucou Pavonin, et détails sur les contrées qu'il habite. < *Revue Zoologique*, vi, 1843, pp. 163–165.

L'Écho du Monde Savant.

1845. Gould, J. [Description of a new Trogon (T. puella).] < *P. Z. S.*, xiii, 1845, p. 18.

1847. Lafresnaye, [F.] de. Mélanges ornithologiques sur le Trogon Xalapensis (Couroucou de Xalapa), Brd. Dubus; Esquisses ornithologiques, 1re livrais., Pl. II, et sur les Couroucous en général. < *Revuè Zoologique*, x, 1847, pp. 180–182.

1849. Deville, E., *et* Des Murs, O. Note sur une nouvelle espèce de Couroucou (Trogon ramoniana), et sur le Trogon meridionalis. < *Rev. et Mag. de Zool.*, i, 1849, pp. 331–333.

1856. Fraser, L. [Exhibition of a number of Birds, from the collection of T. C. Eyton, Esq.] < *P. Z. S.*, xxiv, 1856, pp. 368, 369.

Trogon eytoni, *Juida eytoni*, spp. nn.

1856. Gould, J. Description of a New Trogon and a New Odontophorus. < *P. Z. S.*, xxiv, 1856, pp. 107, 108.

Trogon aurantiiventris, p. 107; *Odontophorus veraguensis*, p. 107.

1857. Bogdanow, A. Note sur le pigment rouge des plumes du Calurus auriceps, Gould. < *Rev. et Mag. de Zool.*, ix, 1857, pp. 511–514.

1857. Gould, J. Description of a new Trogon [aurantiiventris] and a new Odontophorus [veragnensis]. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 110, 111.

From *P. Z. S.*, May 13, 1856, pp. 107, 108.

1860. Salvin, O. [Exhibition of the eggs of the Quesal (Pharomachrus paradiseus).] < *P. Z. S.*, xxviii, 1860, p. 374.

1861. La Llave, Pablo de. Mémoires d' histoire naturelle du docteur D. Pablo de la Llave, extraits du Registro trimestre publié à Mexico en 1832. < *Rev. et Mag. de Zool.*, xiii, 1861, pp. 23–33.

Contient une traduction Française, par A. Sallé, d'un mémoire sur le Quetzaltototl (*Pharomachrus mocinno*) par Señor de la Llave, accompagnée des notes du traducteur. Voir 1832.

1861. Salvin, O. Quesal-shooting in Vera Paz. < *Ibis*, iii, 1861, pp. 138–149.

Narrative of an expedition to procure *Pharomachrus paradiseus*.

1868–75. Gould, J. A | Monograph | of | the Trogonidæ, | or | Family of Trogons. | By | John Gould, F. R. S. &c. | — | London: | printed by Taylor and Francis, Red Lion Court, Fleet Street. | Published by the Author, 26 Charlotte Street, Bedford Square. | [1868–] 1875. 1 vol. folio. pp. i–xx (title, dedication, preface, introduction, synopsis); list of plates 1 leaf; pll. colored, 1–4, 4a, 5–46, each with a sheet or more of letterpress. Pub. in — Parts.

Orig. ed. pub. —— to 1838. This second edition is really a different publication; all the plates being redrawn, and many more species being figured. Some of the plates are reproduced from the author's *Birds of Asia*. They are as follows:

1. *Pharomacrus mocinno.* 2. *P. antisianus.* 3. *P. fulgidus.* 4, 4a. *P. auriceps.* 5. *P. pavoninus.* 6. *Euptilotis neoxenus.* 7. *Trogon mexicanus.* 8. *T. ambiguus.* 9. *T. elegans.* 10. *T. personatus.* 11. *T. puella.* 12. *T. aurantiiventris.* 13. *T. collaris.* 14. *T. atricollis.* 15. *T. tenellus.* 16. *T. caligatus.* 17. *T. meridionalis.* 18. *T. ramonianus.* 19. *T. variegatus.* 20. *T. behni.* 21. *T. viridis.* 22. *T. chionurus.* 23. *T. bairdii.* 24. *T. aurantius.* 25. *T. surucura.* 26. *T. citreolus.* 27. *T. melanocephalus.* 28. *T. clathratus.* 29. *T. melanurus.* 30. *T. macrurus.* 31. *T. massena.* 32. *Tmetotrogon roseigaster.* 33. *Prionotelus temnurus.* 34. *Hapaloderma narina.* 35. *H. constantia.* 36. *H. diardi.* 37. *H. hasumba.* 38. *H. fasciatus.* 39. *H. ardens.* 40. *H. davauceli.* 41. *H. rutilus.* 42. *H. hodgsoni.* 43. *H. erythrocephalus.* 44. *H. reinwardti.* 45. *H. mackloti.* 46. *H. oreskios.* Cf. *Ibis*, 1870, p. 118.

1871. La Llave, Pablo de. El Pharomachrus mocinno su descripcion y fundamentos de este género de aves. < *La Naturaleza*, ii, 1871, pp. 17, 18.

Apéndice al artículo anterior, *ibid.*, pp. 14–16.

1871. SAUSSURE, H. DE. Los Curucús [Trogonidæ]. <*La Naturaleza,* ii, 1871, pp. 14–16.

Sobre las costumbres.

1872. BREWER, T. M. [Remarks on exhibition of Pharomachrus mocinno.] <*Proc. Boston Soc. Nat. Hist.*, xv, 1872, p. 152.

1874. TURATI, *Count, and* SALVADORI, T. Description of a New Trogon of the Genus Pharomacrus [xanthogaster]. <*P. Z. S.*, Nov. 17, 1874, p. 652.

1877. BOUCARD, A. Notes on Pharomacrus costaricensis. <*Rowl. Orn. Misc.*, iii, pt. xi, Nov., 1877, pp. 21–28.

Very full on the habits of the bird.

Alcedinidæ.

1845. THOMPSON, W. Occurrence of the Belted Kingfisher, Alcedo Alcyon, Linn., in Ireland. < *Ann. Mag. Nat. Hist.*, xvi, 1845, p. 430.

1846. NEWMAN, E. Occurrence of the Great Belted Kingfisher [Ceryle alcyon] in Ireland. < *Zoologist*, iv, 1846, p. 1212.

1846. THOMPSON, W. Additional note on the Belted Kingfisher, Alcedo Alcyon, Linn., obtained in Ireland. < *Ann. Mag. Nat. Hist.*, xvii, 1846, pp. 69, 70.

1852. CASSIN, J. Catalogue | of the | Halcyonidæ | in the collection of | the Academy of Natural Sciences | of Philadelphia. | < *Published with the Proc. Acad. Nat. Sci. Phila.*, vol. vi; dated Nov. 1, 1852; not paged. Also separately, 8vo, foll. 10.

Synonymatic.

1863. SCHLEGEL, H. Alcedines. < *Mus. Hist. Nat. Pays-Bas*, 3e livr., Mai, 1863, pp. 1–52.

The Kingfishers are all ranged in two genera, *Alcedo* and *Dacelo*, corresponding nearly with the subfamilies of other authors; there being treated of the former 32 spp., and 46 of the latter, represented by a total of 544 specimens in the Leyden Museum. *A. picturata*, p. 16; *Dacelo grayi*, p. 37, spp. nn.

See same author at 1874.

1868. ENDICOTT, W. E. The Belted Kingfisher [Ceryle alcyon]. < *Am. Nat.*, ii, 1868, p. 218.

Note on the mode of nesting.

1868. FOWLER, A. The Belted Kingfisher [Ceryle alcyon]. < *Am. Nat.*, ii, 1868, pp. 403–405.

On the breeding-habits, nest and eggs.

1868. MARCH, P. G. Kingfisher's [Ceryle alcyon] Nest again [with reference to preceding accounts in the same Journal]. < *Am. Nat.*, ii, 1868, p. 490.

Description of two nests.

1868–71. SHARPE, R. B. A Monograph | of | the Alcedinidæ: | or, | Family of Kingfishers. | By | R. B. Sharpe, F. L. S. &c., | Librarian to the Zoological Society of London, Member of the German Ornithologists' Society, &c., &c. | — | Perque dies placidos hiberno tempore septem | Incubat alcyone pendentibus æquore nidis. | Ovid, Met. xi. 745. | — | London: | published by the author. | — | 1868–71. 1 vol. 4to. not paged, plates not numbered. Title, 1 l.; dedication, 1 l.; contents, list of plates and introduction, pp. i–lxxii, with 1 plate of generic details and 1 map. Text, unpaged, 304 pp. Plates, unnumbered, 120. Index, pp. i–xii. List of subscribers, 1 page. Published in 15 parts, 1868–1871, as follows:—

Part I, July 1, 1868; II, Oct. 1, 1868; III, Jan. 1, 1869; IV, Apr. 1, 1869; V, July 1, 1869; VI, Oct. 6, 1869; VII, Jan. 1, 1870; VIII, Apr. 1, 1870; IX, July 1, 1870; X, XI, Oct. 1, 1870; XII, Nov. 1, 1870; XIII, Dec. 1, 1870; XIV, XV, Jan. 1, 1871; the last containing the permanent title, introduction, and other furnishings.

According to the table of contents the pages and plates are citable as follows:

Alcedo ispida, p. 1, pl. 1; *bengalensis*, p. 11, pl. 2; *grandis*, p. 19, pl. 3; *malaccensis*, p. 21, pl. 4; *asiatica*, p. 23, pl. 5; *quadribrachys*, p. 25, pl. 6; *semitorquata*, p. 27, pl. 7; *euryzona*, p. 29, pl. 8; *beryllina*, p. 31, pl. 9. *Corythornis vintzioides*, p. 33, pl. 10; *cristata*, p. 35, pl. 11; *cæruleocephala*, p. 39, pl. 12. *Alcyone azurea*, p. 41, pl. 13; *pulchra*, p. 45, pl. 14; *diemensis*, p. 47 (no pl.); *lessoni*, p. 49, pl. 15; *affinis*, p. 51, pl. 15; *pusilla*, p. 53, pl. 16; *cyanopectus*, p. 55, pl. 17. *Ceryle guttata*, p. 57, pl. 18; *lugubris*, p. 59 (no pl.); *rudis*, p. 61, pl. 19; *maxima*, p. 67, pl. 20; *sharpii*, p. 71, pl. 21; *torquata*, p. 73, pl. 22; *stellata*, p. 77 (no pl.); *alcyon*, p. 79, pl. 23; *amazonia*, p. 83, pl. 24; *cabanisi*, p. 87, pl. 25; *americana*, p. 89, pl. 26; *inda*, p. 91, pl. 27; *superciliosa*, p. 93, pl. 28. *Pelargopsis melanorhyncha*, p. 95, pl. 29; *amauroptera*, p. 97, pl. 30; *leucocapilla*, p. 99, pl. 31; *gouldi*, p. 101, pl. 32; *fraseri*, p. 103, pl. 33; *gurial*, p. 105, pl, 34; *malaccensis*, p. 107 (no pl.); *burmanica*, p. 109, pl. 35; *floresiana*, p. 111, pl. 36. *Ceyx philippensis*, p. 113, pl. 37; *solitaria*, 1868–71. SHARPE, R. B.—Continued.

p. 115, pl. 38; *melanura*, p. 117, pl. 39; *tridactyla*, p. 119, pl. 40; *rufidorsa*, p. 121, pl. 41; *sharpii*, p. 123, pl. 42; *dillwynni*, p. 125, pl. 43; *cajeli*, p. 127, pl. 44; *wallacei*, p. 129, pl. 45; *lepida*, p. 131, pl. 46; *uropygialis*, p. 133, pl. 47. *Ceycopsis fallax*, p. 135, pl. 48. *Ispidina madagascariensis*, p. 137, pl. 49; *leucogastra*, p. 139, pl. 50; *picta*, p. 141, pl. 51; *natalensis*, p. 145, pl. 52; *ruficeps*, p. 147, pl. 53; *lecontei*, p. 149, pl. 54. *Syma torotoro*, p. 151, pl. 55; *flavirostris*, p. 153, pl. 56. *Halcyon coromanda*, p. 155, pl. 57; *badia*, p. 159, pl. 58; *smyrnensis*, p. 161, pl. 59; *gularis*, p. 165, pl. 60; *cyanoventris*, p. 167, pl. 61; *pileata*, p. 169, pl. 62; *erythrogastra*, p. 171, pl. 63; *semicaerulea*, p. 173, pl. 64; *albiventris*, p. 177, pl. 65; *orientalis*, p. 181, pl. 66; *chelicutensis*, p. 183, pl. 67; *senegaloides*, p. 157, pl. 68; *cyanoleuca*, p. 189, pl. 69; *senegalensis*, p. 191, pl. 70; *dryas*, p. 193, pl. 71; *malimbica*, p. 195, pl. 72; *albicilla*, p. 197, pl. 73; *leucopygia*, p. 199, pl. 74; *nigrocyanea*, p. 201, pl. 75; *lazuli*, p. 203, pl. 76; *diops*, p. 205, pl. 77; *macleayi*, p. 207, pl. 78; *pyrrhopygia*, p. 211, pl. 79; *cinnamomina*, p. 213, pl. 80; *australasiæ*, p. 215, pl. 81; *lindsayi*, p. 217, pl. 82; *concreta*, p. 219, pl. 83; *hombroni*, p. 221, pl. 84; *sacra*, p. 223, pl. 85; *juliae*, p. 227, pl. 86; *chloris*, p. 229, pl. 87; *sordida*, p. 233, pl. 88; *forsterii*, p. 235, pl. 89; *vagans*, p. 237, pl. 90; *sancta*, p. 239, pl. 91; *funebris*, p. 243, pl. 92. *Todirhamphus veneratus*, p. 245, pl. 93; *recurvirostris*, p. 247, pl. 94; *tutus*, p. 249, pl. 95. *Carcineutes pulchellus*, p. 251, pl. 96; *melanops*, p. 253, pl. 97. *Monachalcyon monachus*, p. 255, pl. 98. *Caridonax fulgidus*, p. 257, pl. 99. *Tanysiptera sylvia*, p. 259, pl. 100; *doris*, p. 263, pl. 101; *emiliæ*, p. 265, pl. 102; *sabrina*, p. 267, pl. 103; *nympha*, p. 269, pl. 104; *ellioti*, p. 271, pl. 105; *hydrocharis*, p. 273, pl. 106; *acis*, p. 275, pl. 107; *margarethæ*, p. 277, pl. 108; *nais*, p. 279, pl. 109; *galeata*, p. 281, pl. 110; *riedeli*, p. 283, pl. 111. *Ducelo gigas*, p. 285, pl. 112; *leachi*, p. 289, pl. 113; *cervina*, p. 291, pl. 114; *occidentalis*, p. 293, pl. 115; *gaudichaudi*, p. 295, pl. 116; *tyro*, p. 297, pl. 117. *Cittura sanghirensis*, p. 299, pl. 118; *cyanotis*, p. 301, pl. 119. *Melidora macrorhina*, p. 303, pl. 120.

In addition to these plates of species, there is one of generic details, 27 figures, and a map of family relationships.

The introduction includes elaborate essays on the classification of the family, with diagnoses of all the genera and species recognized, and on the geographical distribution, as well as an important résumé of the literature of the subject. The family is divided into two subfamilies, *Alcedininæ*, with 5 genera and 41 spp., and *Daceloninæ*, with 14 genera and 84 spp.

The monograph is a model one; it at once became and remains the leading authority on the subject, and forms the corner-stone of the author's high reputation.

Cf. *Ibis*, 1868, pp. 472, 473; 1869, pp. 215, 216; 1870, pp. 121, 122, 506, 507; *J. f. O.*, 1870, pp. 377–380; *Am. Nat.*, iii, 1869, pp. 149, 150.

1869. DAVIS, H. The Kingfisher in Winter [Ceryle alcyon, in Minnesota]. < *Am. Nat.*, iii, 1869, p. 389.

1869. RIDGWAY, R. The Belted Kingfisher [Ceryle alcyon] again. < *Am. Nat.*, iii, 1869, pp. 53, 54.

Observations on the nidification of *Ceryle alcyon*, with reference to conflicting statements in this journal.

1869. WILLIAMS, C. E. Nest of the Belted Kingfisher [Ceryle alcyon]. < *Am. Nat.*, ii, 1869, pp. 614, 615.

Note on two nests, with reference to discussion between W. Wood and W. E. Endicott.

1870. HUGHES, D. D. The Kingfisher's [Ceryle alcyon] Nest. < *Am. Nat.*, iii, 1870, p. 616.

Notes on several nests of *Ceryle alcyon.*

1870. FINSCH, O. R. B. Sharpe's Monographie der Alcedinidæ. < *J. f. O.*, xviii, 1870, pp. 377–380.

1873. ABBOTT, C. C. Feeding Habits of the Belted Kingfisher [Ceryle alcyon]. < *Zoologist*, 2d ser., viii, 1873, pp. 3527, 3528.

From 'Nature,' Mar. 13.

1873. ANON. Kingfishers and Fish. < *Am. Sportsman*, ii, 1873, p. 187.

Method in which *Ceryle alcyon* handles and swallows its prey discussed.

1873. BREED, E. E. The Kingfisher [Ceryle alcyon]. < *Am. Nat.*, vii, 1873, p. 634.

On the way in which its food is prepared for deglutition.

1874. SCHLEGEL, H. Revue de la Collection des Alcedines faisant partie du Musée des Pays-Bas. < *Mus. Nat. Hist. Pays-Bas*, 11e livr., Juin, 1874, pp. 1–48.

See the original article, to which this is supplementary, 1863.

1878. BICKNELL, E. P. [Migrations of Kingfisher (Ceryle alcyon).] < *The Country*, i, Feb. 16, 1878, p. 229.

1878. Brown, N. C. [Late stay of Kingfisher (Ceryle alcyon) in New England.] < *The Country*, i, Jan. 26, 1878, p. 181.

1878. Coues, E. Habits of the Kingfisher (Ceryle alcyon). < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 92.

Fruit-eating: communicated by Mrs. Mary Treat.

1879. Shaw, C. J. The Belted King Fisher. (Ceryle Alcyon.) < *Journ. of Sci.* (Toledo, Ohio), n. s., ii, No. 8, Dec., 1879.

Nesting habits.

Capitonidæ.

[In this family I give all the titles I possess.]

1798. SPARRMAN, A. Bucco atro-flavus: Et nytt fogel species ifrån Sierra Liona, beskrifvit. < *Kongl. Vetensk.-Acad. Nya Handl.*, xix, 1798, pp. 305–307, pl. ix.

1836. LAFRESNAYE, F. DE. Barbion. Micropogon. Temm. B. soufré. B. sulphuratus. Lafresn. < *Guér. Mag. de Zool.*, 6e année, 1836, classe ii, pp. 1–5, notice lx, pl. lx.

Pl. 60, *Micropogon sulphuratus.*—En suite, une liste de sept espèces américaines, asiatiques et africaines du genre.

1837. RÜPPELL, [E.] A Notice of the Phytotoma tridactyla of Abyssinia. < *P. Z. S.*, v, 1837, p. 50.

Proposes to call *Pogonias brucei* what had been named by Stanley *Bucco saltii.*

1842. HARTLAUB, [G.] Description d'une nouvelle espèce du genre Barbu [Bucco malaccensis], suivie de la liste de toutes les espèces connues de ce genre. < *Revue Zoologique*, v, 1842, pp. 336, 337.

27 espèces.

1849. DEVILLE, E., *and* DES MURS, O. Notice sur le Barbu orangé de Pérou (Capito Peruvianus); sur le Barbu de la Gnyane [sic] (C. erythrocephalus ou Cayanensis) et sur une variété intermédiare ou espèce nouvelle (C. amazonicus?). < *Rev. et Mag. Zool.*, i, 1849, pp. 161–176.

Petite monographie.

1849. LAFRESNAYE, F. DE. Description et figure d'une [récemment] nouvelle espèce d'Oiseau du genre Micropogon de Temminck. < *Rev. et Mag. Zool.*, i, 1849, pp. 116, 117, pl. 4.

M. bourcieri, Lafr., *R. Z.*, 1845, p. 179.

1849. LAFRESNAYE, F. DE. Description et figure d'une [récemment] nouvelle espèce d'Oiseau du genre Micropogon de Temminck. < *Rev. et Mag. Zool.*, i, 1849, pp. 176, 177, pl. 6.

M. hartlaubii, Lafr., *R. Z.*, 1845, p. 180.

1850. [JARDINE, W.] Megalaima capistratus, Eyton [n. sp.?]. < *Jard. Contrib. Orn.*, 1850, p. 29, pl. xlv.

1855. [JARDINE, W.] Tetragonops ramphastinus (Jardine). < *Edinb. New Philos. Journ.*, new ser., ii, 1855, p. 404.

1858. SCLATER, P. L. On a new species of Barbet from the Upper Amazon. < *Ann. Mag. Nat. Hist.*, 3d ser., i, 1858, p. 235.

From *P. Z. S.*, Nov. 24, 1857, p. 267. The new species is *Eubucco aurantiicollis*, described among other birds in a paper on Bates's Upper Amazon collections.

1859. VERRAUX, J. Description d'une nouvelle espèce de Barbu [Laimodon albiventris] de l'Afrique occidentale. < *P. Z. S.*, xxvii, 1859, pp. 393–400, pl. (Aves) clvii.

Suivie de l'indication synonymatique de 24 espèces africaines.

1861. SCLATER, P. L. On the American Barbets (Capitonidæ). *Ibis*, iii, 1861, pp. 182–190, pl. vi.

Synonymatic, diagnostic, and geographical synopsis of 12 spp. of *Capito* and 1 sp. of *Tetragonops* (pl. vi), with critical remarks.

1862. SCLATER, P. L. Additional [Ibis, 1861, 182] Notes on the American Barbets. < *Ibis*, iv, 1862, pp. 1, 2, pl. i.

Capito maculicoronatus.

1864. SCLATER, P. L. On a new Species of Tetragonops [frantzii]. *Ibis*, vi, 1864, pp. 371, 372, pl. x.

1865. FRANTZIUS, A. v. [Extract from a letter relating to Tetragonops frantzii.] < *Ibis*, 2d ser., i, 1865, p. 551.

1865. MILNE-EDWARDS, A. Rapport sur quelques acquisitions nouvelles faites par la galerie ornithologique du Muséum. <*Nouv. Arch. du Mus. d'Hist. Nat. de Paris*, liv, 1865, *Bull.*, pp. 75–78, pll. iii–v.

Capito quinticolor Elliot, p, —, pl. iv, f. 1, N. Grenada; *Buthraupis edwardsii* Elliot, p, —, pl. iv, f. 2, N. Grenada; *Sitta villosa* Verr., pl. v, f. 1, China.

1867. SCLATER, P. L. Barbets [Capitonidæ] and their Distribution. <*Intellectual Observer*, Nov., 1867, pp. 241–246, pl.

A popular account of the leading peculiarities of the family *Capitonidæ*, illustrated with a plate representing *Megalæma asiatica.*

1870. MARSHALL, C. H. T., *and* MARSHALL, G. F. L. [Megalæma humii, n. sp.] <*Ibis*, 2d ser., vi, 1870, pp. 536–538.

1870. MARSHALL, C. H. T., *and* MARSHALL, G. F. L. Notes on the Classification of the Capitonidæ. <*P. Z. S.*, xxxviii, 1870, pp. 117–120, figg. 1–6.

The family is primarily divided into the three subfamilies *Pogonorhynchinæ*, *Megalæminæ*, and *Capitoninæ;* the first represented in Africa and America, the second in Africa and Asia, the third in Africa, Asia, and America. Several of the current genera are rearranged or reorganized; *Stactolæma*, g. n., p. 118, type *Buccanodon anchietæ*, Bocage, Africa. The heads of this species, of *Barbatula leucolæma*, *Xylobucco duchaillui*, *X. scolopacea*, *Trachyphonus margaritatus*, and *T. purpureus*, are figured.

1870–71. MARSHALL, C. H. T., *and* MARSHALL, G. F. L. A Monograph of the Capitonidæ or Scansorial Barbets. . . . London. 1870, 1871. roy. 8vo. Pub. in 9 parts. Parts i–v, 1870; Parts vi–ix, 1871.

Not seen.

According to the *Zool. Rec.*, whence I take the title and comment herewith presented, Part V contains the Preface and Introduction, the latter beginning with a dissertation on the theory of evolution, which is followed by an account of the literature relating to the special subject, to which succeeds a chapter on the classification and geographical distribution.

The species figured are as follows:

Part I. *Megalæma virens*, *M. versicolor*, *M. henrici*, *Calorhamphus lathami*, *Tricholæma hirsuta*, *Trachyphonus margaritatus*, *Capito maculicoronatus*, *C. aurovirens.* Part II. *Pogonorhynchus dubius*, *Tetragonops frantzii*, *Xylobucco duchaillui*, *Trachyphonus cafer*, *Capito bourcieri*, *Megalæma lineata*, *M. hodgsoni*, *M. flavifrons.* Part III. *Megalæma zeylanica*, *M. caniceps*, *M. nuchalis*, *M. faber*, *M. australis*, *Xantholæma rubricapilla*, *Stactolæma anchietæ*, *Pogonorhynchus leucocephalus.* Part IV. *Megalæma viridis*, *M. asiatica*, *M. oorti*, *M. phæostriata*, *Trachyphonus goffini*, *T. purpuratus*, *T. squamiceps*, *Barbatula leucotis.* Part V. *Megalæma chrysopogon*, *Xantholæma hæmacephala*, *Capito aurantiicollis*, *Psilopogon pyrolophus*, *Calorhamphus fuliginosus*, *Pogonorhynchus abyssinicus*, *P. torquatus*, *P. bidentatus.* Part VI. *Pogonorhynchus rolleti*, *P. diadematus*, *P. melanocephalus*, *Megalæma inornata* (Zool. Rec., vii, p. 43), *Gymnobucco bonapartii*, *Xantholæma malabarica*, *Barbatula bilineata*, *B. atroflava*, and *Capito versicolor.* Part VII. *Xantholæma rosea*, *Megalæma javensis*, *M. mystacophonus*, *M. humii* (Zool. Rec., vii, p. 43), and *M. franklini*, *Tetragonops rhamphastinus*, *Gymnobucco calvus*, and *Xylobucco scolopaceus.* Part VIII. *Megalæma armillaris*, *M. chrysopsis*, *M. corvina*, *Pogonorhynchus vieilloti*, *P. leucomelas*, *Capito richardsoni*, *C. niger*, and *C. auratus.* Part IX. *Pogonorhynchus melanopterus*, *P. undatus*, *Barbatula leucolæma*, *B. pusilla*, *B. subsulphurea*, *B. chrysocoma*, *B. uropygialis*, *Capito glaucogularis*, *C. quinticolor*, *Megalæma legrandierii*, *M. duvauceli*, and *M. cyanotis.*

Cf. *Ibis*, 1870, pp. 505, 506; 1871, pp. 451, 452; and *Zool. Rec.* for 1870 and 1871.

1870. [NEWTON, A.] [Announcement of the Messrs. Marshall's Monograph of the Capitonidæ.] <*Ibis*, 2d ser., vi, 1870, p. 156.

1870. SWINHOE, R. The Large Barbet [Megalæma marshallorum n. sp.] of the Himalayas in want of a Name! <*Ann. Mag. Nat. Hist.*, 4th ser., vi, 1870, p. 348.

1872. MARSHALL, C. H. T., *and* MARSHALL, G. F. L. [Note on the validity of Megalæma marshallorum.] <*Ibis*, 3d ser., ii, 1872, p. 327.

1873. LLOYD, J. H. On a new Species of Barbet [Megalæma sykesi] from Western India. <*Ibis*, 3d ser., iii, 1873, pp. 124, 125.

Bucconidæ.

1836. Gould, J. [Characters of a new species of Tamatia (T. bicincta).] < *P. Z. S.*, iv, 1836, pp. 80, 81.

1845. Lafresnaye, F. de. Description de deux nouvelles espèces d'Oiseaux. < *Revue Zoologique*, viii, 1845, pp. 179, 180.

Micropogon bourcierii, p. 179; *M. hartlaubi*, p. 180.

1850. Lafresnaye, F. de. Description et figure d'une nouvelle espèce de Barbacou [Monasa mystacalis]. < *Rev. et Mag. Zool.*, ii, 1850, pp. 215, 216, pl. 3.

Avec la description d'une autre nouvelle espèce, *M. axillaris*, p. 216.

1851. Cassin, J. Descriptions of new species of Birds of the genera Galbula and Bucco, Briss., specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, v, Feb. 1851, pp. 154, 155, pll. vii, viii.

The new *Bucco* here described and figured is *B. ordii*, p. 154, pl. viii, from Venezuela.

1853. Sclater, P. L. Descriptions of New Species of Bucconidæ. < *P. Z. S.*, xxi, 1853, pp. 122–124, pll. l, li.

Bucco radiatus, p. 122, pl. l; *B. striatipectus*, *Malacoptila fulvogularis*, *M. substriata* (pl. li), *M. aspersa*, p. 423.

1854. Sclater, P. L. A Synopsis of the Fissirostral family Bucconidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xiii, 1854, pp. 353–365, 474–484.

Very complete, giving synonymy, diagnosis, geographical distribution, and much critical matter. *Bucco*, 15 spp.; *Malacoptila*, 12 spp.; *Monasa*, 4 spp.; *Chelidoptera*, 2 spp.

1854. Sclater, P. L. Synopsis | of | the Fissirostral Family | Bucconidæ, | accompanied by four coloured plates | of hitherto unfigured Species. | By | Philip Lutley Sclater, M. A., F. Z. S., | Fellow of Corpus Christi College, Oxford. | — | Reprinted, with Additions, from the | Annals and Magazines of Natural History, | 2nd Series, 1854. | — | London: | Samuel Highley, 32 Fleet Street. | 1854. 1 vol. 8vo. pp. 24, pll. 4.

In this excellent monograph the author, after reviewing the previous arrangements of the group, especially insisting upon the separation of the family from the Scansorial Barbets or *Capitonidæ*, and noting their restriction to tropical America, divides the species into four genera: 1) *Bucco* with *Tamatia*, *Chaunornis* and *Cyphos* as subgenera, 2) *Malacoptila* with *Nonnula* as a subgenus, 3) *Monasa*, 4) *Chelidoptera*. *Bucco* has 15 spp., *Malacoptila* 12, *Monasa* 4, *Chelidoptera* 2. These 33 species are carefully worked out, with all the synonomy the author was able to discover (excepting that relating to *Capito senilis* Tschudi = *Bucco senilis* Poeppig MS.), diagnosis, habitats, and critical comment. The species figured are *Bucco ruficollis*, pl. 1; *B. bicinctus*, pl. 2; *B. lanceolatus*, pl. 3; *Chelidoptera albipennis*, pl. 4. The name *Nonnula* Scl. is new or recently so. Several lately new species of Sclater's were described in the *P. Z. S.* for Dec. 13, 1853.

1855. Sclater, P. L. Characters of some apparently New Species of Bucconidæ, accompanied by a geographical Table of the family. < *P. Z. S.*, xxiii, 1855, pp. 193–196, pll. cv, cvi.

Bucco hyperrhynchus, pl. cv; *B. dysoni* "Gray", p. 193; *B. pulmentum* Bp. et Verr. MSS., pl. cvi; *Monasa peruana* Bp. et Verr. MSS., *Bucco picatus*, p. 194; *Malacoptila nigrifusca*, p. 195, spp. nn. 5 genera, 40 spp.

1855. Sclater, P. L. Descriptions of New Species of Bucconidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xv, 1855, pp. 292–294.

From *P. Z. S.*, Dec. 13, 1853.

1856. Sclater, P. L. Characters of some apparently New Species of Bucconidæ. < *Ann. Mag. Nat. Hist.*, 2d ser., xviii, 1856, pp. 260–263.

From *P. Z. S.*, Nov. 13, 1855.

1861. Giebel, C. G. Zur Osteologie der Gattung Monasa. < *Zeitschr. f. d. gesammt. Naturwiss.*, xviii, 1861, pp. 121– —.

Nicht mir selbst zugänglich.

1862. Sclater, P. L. On a New Species of Malacoptila [M. poliopsis] from Western Ecuador. < *P. Z. S.*, xxx, 1862, pp. 86, 87, pl. viii.

1863. Goffin, A. Buccones. < *Mus. Hist. Nat. Pays-Bas*, 2e livr., Janv., 1863, pp. 1–66; 3e livr., 1863, pp. 67–98.

The group "Buccones" of this author, who may have caught a spirit of retrograde classification from the Director of the Leyden Museum, consists of the two very distinct families of *Capitonidæ* and *Bucconidæ*,—the distinction between which, however, is recognized by the primary division of the group into two, according as the rectrices are 10 (*Capitonidæ*) or 12 (*Bucconidæ*) in number; equivalent respectively to the "scansorial" and "fissirostral" Barbets. Of the former are treated 11 spp. of *Pogonorhynchus*, 34 of *Megalaima*, 1 *Tetragonops*, 11 of *Capito*, and 1 *Calorhamphus*. Of the latter are given 11 spp. of *Bucco*, 4 of *Malacoptila*, 3 of *Monasa*, and 1 of *Chelidoptera*. The groups are, together, represented by 300 specimens in the Leyden Museum. Various species, not represented in the Collection, are also treated in the foot-notes.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New or Little-known American Birds of the Families Fringillidæ, Oxyrhamphidæ, Bucconidæ, and Strigidæ. < *P. Z. S.*, xxxvi, 1868, pp. 322–329, pl. xxix.

Monasa grandior, sp. n., p. 327.

Galbulidæ.

1768. Vosmaer, A. Description | d'un petit | Alcyon d'Amerique, | d'une beauté admirable, | N'ayant presque point de queuë, pourvû de deux doigts | de devant, & de deux de derrière [ ]; | Apporté de la Colonie Hollandoise, nommée | Les Berbices; | Et qui se conserve dans le Cabinet de | Son Altesse Sérénissime | Monseigneur le Prince d'Orange et de Nassau, | Stadhouder He're'ditaire, Governeur, Capi- | taine Ge'ne'ral et Amiral des Provinces-Unies | des Pais-Bas, &c. &c. &c. | Par | A. Vosmaer, | Directeur des Cabinets d'Histoire Naturelle & de Curiosités de S. A. S., Membre de | l'Académie Impériale, & Correspondant de l'Académie Royale des Sciences de Paris. | A amsterdam, | Chez Pierre Meijer, | MDCCLXVIII. 4to. pp. 6, pl. 1.

1768. Vosmaer, A. Description | d'un | Alcyon d'Amerique, | à longue queuë [ ], | Ayant deux doigts de devant, & deux de derrière, | d'une espèce belle et rare, si ce n'est même inconnuë, | Apporté de la Colonie Hollandoise, nommée | Les Berbices; | Et qui se conserve dans le Cabinet de | son Altesse Sérénissime | Monseigneur le Prince d'Orange et de Nassau, | Stadhouder He're'ditaire, Gouverneur, Capi- | taine Ge'ne'ral et Amiral des Provinces-Unies | des Pais-Bas, &c. &c. &c. | Par | A. Vosmaer, | Directeur des Cabinets d'Histoire Naturelle & de Curiosités de S. A. S., Membre de | l'Académie Impériale, et Correspondant de l'Académie Royale des Sciences de Paris. | a Amsterdam, | Chez Pierre Meijer, | MDCCLXVIII. | 4to. pp. 9, pl. 1.

1851. Cabanis, [J.] Galbula. <*Ersch und Grub. Encyclop.*, erste Sect., lii, 1851, pp. 307-311.

A concise monograph of the family, treating the following genera and species: I. Galbula. 1, *viridis;* 2, *viridicauda;* 3, *ruficauda;* 4, *rufoviridis*, p. 308, sp. n.; 5, *tombacea;* 6, *albirostris;* 7, *cyanopogon*, p. 309, sp. n.; 8, *paradisea;* 9, *leucogastra;* 10, *albiventris;* 11, *albogularis;* 12, *lugubris.* II. Cauax. 1, *tridactylus.* III. Cauecias, p. 310, g. n. 1, *leucotis.* IV. Lamproptila (*vice Lamprotila* Sw., 1837). 1, *grandis;* 2, *boërsii.*

1851. Cassin, J. Descriptions of new species of birds of the genera Galbula and Bucco, Briss., specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. <*Proc. Acad. Nat. Sci. Phila.*, v, 1851, pp. 154, 155, pll. vii, viii.

G. cyanicollis, p. 154, pl. vii, from Pará; *B. ordii*, p. 154, pl. viii.

1852. Sclater, P. L. VI.—Synopsis of the Genus Galbula. <*Jard. Contrib. Orn.*, 1852, pp. 29-33.

11 spp. *G. maculicauda*, p. 29; *G. inornata*, p. 32, spp. nn.

1852. Sclater, P. L. VII.—On a new species of Galbula [G. melanogenia]. <*Jard. Contrib. Orn.*, 1852, p. 61, pl. xc.

1852. Sclater, P. L. VIII.—Further Remarks on the Galbulidæ. <*Jard. Contrib. Orn.*, 1852, pp. 93-95, pl. xc.

4 spp. of *Galbula* (*G. melanogenia*, pl. xc); notes on spp. of *Jacamaralcyon*, *Galbalcyrhynchus*, *Jacamerops*, *Galbuloides.*

1853. Sclater, P. L. A Synopsis of the Galbulidæ by Philip Lutley Sclater, M. A., F. Z. S. 8vo. pp. 10, and cover.

Reprinted, with additions, from *Jard. Contrib. Orn.*, for 1852. The author recognizes of *Galbula* 11 spp., of *Jacamaralcyon* 2, of *Jacamerops* 2, of *Galbuloides* and *Galbalcyrhynchus* each one. In using this synopsis the author's later paper, *P. Z. S.*, 1855, pp. 13-16, should be consulted for some important rectifications.—The cover of this publication gives some valuable bibliographical data respecting that erratic publication, *Jardine's Contrib. Orn.* for 1848-52. It appears that the Contributions were begun in the middle of 1848, during which year three parts appeared; in 1849, seven parts were published, forming a volume, with 27 plates; in 1850, seven parts, forming a volume, with 21 plates; in 1851, six parts, forming a volume, with 14 plates; in 1852, seven parts, with 20 plates, forming a volume.

1853. TRISTRAM, H. B. Occurrence of the Jacamar (Galbula ruficauda) in Lincolnshire. < *Zoologist*, xi, 1853, pp. 3906, 3907.

1855. SCLATER, P. L. Remarks on the Arrangement of the Jacamars (Galbulidæ), with Descriptions of some New Species. < *P. Z. S.*, xxiii, 1855, pp. 13-16, pl. (Aves) lxxvii.

6 genn., 20 spp. *Galbula fuscicapilla*, p. 13, pl. lxxvii; *Urogalba amazonum*, p. 14; *Brachygalba melanosternum*, p. 15, spp. nn. Besides these new species the paper includes some important rectifications resulting from investigations made since the writer's 'Synopsis' of 1853 appeared, and a table of Geographical Distribution. The genus *Galbuloides* is eliminated as probably fictitious.

1856. SCLATER, P. L. Remarks on the Arrangement of the Jacamars (Galbulidæ), with Descriptions of some New Species. < *Ann. Mag. Nat. Hist.*, 2d ser., xvii, 1856, pp. 70-73.

From *P. Z. S.*, Jan. 9, 1855, pp. 13-16

Rhamphastidæ.

1773. ———. Naturgeschichte des grossschnablichten Pfeffervogels. < *Berlin. Samml.*, Bd. v, 1773, pp. 294–302.

Not seen—title from Carus and Engelmann.

1795. SPALOWSKI, J. J. A. Beschreibung und Abbildung der Ramphastos viridis und momota L. < *Neuere Abhandlungen der K. Böhmer. Gesellsch.*, ii, 1795, pp. 172–178, 2 pll.

Not seen.

"1803–1818." LEVAILLANT, F. Histoire Naturelle | des Oiseaux de Paradis | et des Rolliers, | suivie de celle des Toucans et des Barbus, | par | François Lavaillant. | Tome premier [second; et un troisième (Promerops, Guépiers)]. | [Monogram.] | Paris, | Chez { Denné le jeune, Libraire, rue Vivienne, n°. 10. | Perlet, Libraire, rue de Tournon [mut. mut.]. } 1806. ["1803–1818."] 3 vols. gr. in-fol. 196 planches coloriées et les doubles en noir, savoir:—

[*Vol. I.*]

Histoire Naturelle des Oiseaux de Paradis et des Rolliers, suivie de celle des Toucans et des Barbus, [etc.] Vol. I. Faux titre, titre, pp. 1–153, i, ii, pll. 1–56.

Histoire Naturelle des Oiseaux de Paradis. pp. 1–68, pll. 1–24. [PARADISEIDÆ, etc.]

Histoire Naturelle des Rolliers et des Geais. pp. 69–116, pll. 25–39. [CORACIIDÆ, MOMOTIDÆ, etc.]

Histoire Naturelle des Geais. pp. 117–153, pll. 40–56. [CORVIDÆ, COTINGIDÆ, etc.]

[*Vol. II.*]

Histoire Naturelle des Oiseaux de Paradis et des Rolliers, suivie de celle des Toucans et des Barbus, [etc.] Vol. II. Faux titre, titre, pp. 1–133, i, ii, 1 feuillet, pll. 1–57.

Histoire Naturelle des Toucans. pp. 1–46, pll. 1–18. [RHAMPHASTIDÆ.]

Histoire Naturelle des Barbus. pp. 47–106, pll. 19–46. [CAPITONIDÆ, BUCCONIDÆ.]

Histoire Naturelle des Jacamars. pp. 107–126, pll. 47–54. [GALBULIDÆ.]

Additions aux articles des Barbus proprements dits. pp. 127–133, pll. 55–57.

[*Vol. III.*]

Histoire Naturelle | des Promerops | et des Guépiers, | par | F. Levaillant, | faisante suite | a celle des Oiseaux de Paradis, | par le même. Faux titre, 1 feuillet; pp. 1–81, 1–67, 1–38, 39–52, i, ij., pll.

1ère PARTIE. Histoire Naturelle des Promerops. pp. 1–81, pll. 1–32.

2ème PARTIE. Histoire Naturelle des Guépiers. pp. 1–67, pll. 1–20. [MEROPIDÆ.]

3ème PARTIE. Histoire Naturelle des Couroucous, et des Touracous. pp. 1–38, pll. 1–20. [TROGONIDÆ, MUSOPHAGIDÆ.]

SUPPLEMENT aux différents genres d'oiseaux décrits dans les deux premiers volumes. pp. 39–52, pll. A, AA, B, C, D, E, F, G, h, K, L.

The whole of this series of splendid monographs forms three large folio volumes, with nearly 200 colored plates, duplicated in black. The titles of Vols. I and II are identical; the title of the third is entirely changed, and does not show on its face that it is not of a different work. The three, however, are uniform, and form parts of one work. It is, in fact, the continuation of Levaillant's *Hist. Nat. Ois. de l'Amérique et des Indes* (itself a supplement to the

"1803–1818" LEVAILLANT, F.—Continued.

Ois. de l'Afrique), which was announced in 1801 to appear in parts, with 240 plates; only one volume of that, however, came out, with 49 plates. That was, in effect, two monographs, of the *Bucerotidæ* and *Cotingidæ;* and the present Iconography continues the same system of monographing successive groups of birds; though, unfortunately, the author's groups do not correspond with any recognized modern families.

Volume I is consecutively paged and the plates are continuously numbered throughout. It has two Parts. The first is a monograph of *Paradiseidæ*, the second of *Coraciidæ*, *Momotidæ*, certain *Corvidæ*, etc.

Volume II, titled identically with Vol. I, and likewise with a continuous pagination and consecutive numbering of plates throughout, has several monographs, of *Rhamphastidæ*, *Capitonidæ*, *Bucconidæ*, *Galbulidæ*, etc.

Vol. III is less homogeneous. In the first place, the several memoirs are separately paged, and their respective series of plates are separately enumerated. In the next place, it has supplementary matter relating to the subjects treated in the two preceding volumes—this supplement being paged continuously with the last part of the main text, and its plates being lettered instead of numbered. There are three "Parts" in this Volume:—1. *Promerops* (a miscellaneous assortment, *Certhia*, etc.). 2. *Meropidæ*. 3. *Trogonidæ* and *Musophagidæ*.

I indicate thus the general bearing of the several treatises which compose this Iconography; though, as already said, few if any of Levaillant's groups correspond exactly with modern families.

Owing to its extensive and varied composition the work is not an easy one to cite tersely; and it is to be found quoted in such various and loose fashion as to convey the impression that there are as many distinct works as there are monographs in the single one. Figures and descriptions had best be all cited by the leading words "OIS. DE PARAD.", giving Vol. I, II, III, as the case may be, and in the instance of the last volume citing also name of the monograph or supplement.

The date of the work is in endless question. I have never yet been able to fix it. The date on the titles of all three of the volumes is the same, 1806; but the work appeared in parts, during several years. According to Engelmann, there were 33 livraisons, running from 1803 to 1818; but he gives no sufficient particulars. The date is of less consequence, however, as the author uses no scientific names, and therefore raises no question of priority of nomenclature.

The number of plates is ostensibly 56 + 57 + 32 + 20 + 20 + 11 = 196, but there may be some interpolations. Engelmann gives 198. I have not made the actual count.

1815. TRAILL, T. S. Some Observations on the Bill of the Toucan; in a Letter to the Right Hon. Sir Joseph Banks, Bart., K. B. P. R. S. H. M. L. S. < *Trans. Linn. Soc.*, xi, pt. ii, 1815, pp. 288, 289.

Controverting the notion of its hollowness; noting its great vascularity, and probable use as a delicate organ of smell.

1818. TRAILL, T. S. Tukanschnabel, von Sf. [lege T. S.] Traill. < *Oken's Isis*, Jahrg., ii, 1818, pp. 1921, 1922.

From *Tr. Linn. Soc.*, xi, 1815, p. 288, *q. v.*

1820. SWAINSON, W. Description of two new Birds of the genus Pteroglossus. < *Quart. Journ. Sci. Lit. and Art*, Roy. Inst., ix, 1820, pp. 266–268.

Not seen. The species are *Pt. torquatus*, p. —, and *Pt. sulcatus*, p. —.

1825. BRODERIP, W. J. Observations on the Manners of a live Toucan [Rhamphastos erythrorhynchus], now exhibited in this country. < *Zool. Journ.*, i, 1825, pp. 484–488; also p. 591.

1825. LESSON, R. P. Observations sur les habitudes et la manière de vivre d'un Toucan qu'on montre actuellement en Angleterre; par W. J. Broderip. . . . < *Féruss. Bull.*, 2e sect., vi, 1825, p. 413.

Zool. Journ., Janvier 1825, pp. 484–488.

1826. VIGORS, N. A. On some species of the Ramphastidæ. < *Zool. Journ.*, ii, 1826, pp. 466–483, pl. suppl. 17.

This is a subhead of a much more extensive paper, entitled "Sketches in Ornithology;" &c., which runs through several vols. and years of the periodical cited.

Here occur the descriptions of *Ramphastos ariel*, p. 466, and *Pteroglossus bitorquatus*, p. 481, pl. 17, spp. nn., with much other matter relating to the family at large. (*Féruss. Bull.*, x, 1827, pp. 155–157; *Isis*, 1830, pp. 1060–1065.)

1827. Ag. Desm—st. Suite des Esquisses ornithologiques, ou Observations sur les véritables affinités de quelques groupes d'oiseaux, par M[*i. e.*, N]. A. Vigors.—Sur quelques espèces de Ramphastidées. < *Féruss. Bull.*, 2e sect., x, 1827, pp. 155–157.

Zool. Journ., ii, 1826, pp. 466–483.

1827. Anon. Systema Avium. Auctor Dr. I. Wagler. Stuttgartiae apud Cotta. 1827. 8. < *Oken's Isis*, Bd. xx, 1827, pp. 864–873.

The peculiar plan of the work is illustrated by a transcript of Wagler's treatment of the genus *Rhamphastos*—14 spp.—nearly the whole of the present article being devoted to the exhibit of that genus.

1828. Broderip, W. J. Bemerkungen über das Betragen eines lebendigen Tukans [Rhamphastos] in London. < *Oken's Isis*, Bd. xxi, 1828, pp. 939, 940.

Uëbers aus d. *Zoological Journal*, i, 1825, Bd. i, Nr. 47, pp. 484–488, 591.

1830. Vigors, N. A. Ornithologischen Skizzen. Ueber die Verwandtschaft einiger grösserer Vögelgruppen. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1060–1064.

Zoological Journal, Nro. viii, Januar 1826 (vol. ii), pp. 466–483. Ueber einige Arten der Ramphastiden.

1832. Owen, R. [On the Anatomy of Ramphastos ariel, Vig.] < *P. Z. S.*, ii, 1832, pp. 42–46.

1833–35. Gould, J. A Monograph of the Ramphastidæ or Family of the Toucans. London. Published by the Author. 1833–1835. folio. Pub. in 3 parts. 52 colored plates.

Not seen! There is a 2d ed. 1854, and Suppl. 1855, *q. v.* There is also a German version by Sturm and Sturm, 1841——.

1833. Gould, J. [Characters of a New Species of Toucan (Pteroglossus ulocomus).] < *P. Z. S.*, i, 1833, p. 38.

1833. Gould, J. [Characters of three New Species of Toucan (Rhamphastos and Pteroglossus).] < *P. Z. S.*, i, 1833, pp. 69, 70.

R. swainsonii, p. 69; *R. culminatus*, *P. hypoglaucus*, p. 70.

1833. Gould, J. [Characters of a New Species of Toucan (Pteroglossus castanotis).] < *P. Z. S.*, i, 1833, pp. 119, 120.

1834. Anon. A Monograph, etc.—Monographie des Toucans; par M. J. Gould, in-fol., Londres, 1833. < *Ann. des Sci. Nat.*, 2e sér., i, 1834, p. 256.

L'annonce de l'ouvrage.

1834. Gould, J. [Characters of the Genera and Species of the Family Rhamphastidæ, Vig.] < *P. Z. S.*, ii, 1834, pp. 72–79.

This is the most extensive and complete of the earlier notices of the family, treating in all of 22 species.

1834. Gould, J. [Characters of a New Species of Toucan (Pteroglossus hæmatopygus).] < *P. Z. S.*, ii, 1834, p. 147.

1835. Gould, J. [Exhibition of a living Red-billed Toucan (Rhamphastos erythrorhynchus, Gmel.).] < *P. Z. S.*, iii, 1835, p. 21.

1835. Gould, J. [On a New Species of Toucan (Rhamphastidæ, Vig.—Aulacorhynchus derbianus).] < *P. Z. S.*, iii, 1835, p. 49.

1835. Gould, J. [Characters of New Toucans and Araçaris (Rhamphastidæ), with a Synoptic Table of the Species of the Family.] < *P. Z. S.*, iii, 1835, pp. 156–160.

Rhamphastos citreopygus, *R. osculans*, p. 156; *Pteroglossus pluricinctus*, *P. humboldtii*, *P. nattereri*, *P. reinwardtii*, *P. langsdorffii*, p. 157; *P. pavoninus*, p. 158. With analytical diagnosis of the species of the family.

1835. Gould, J. [On Rhamphastidæ.] < *Lond. and Edinb. Philos. Mag.*, vii, 1835, pp. 64 and 228.

From *P. Z. S.*, Dec. 9, 1834, and Apr. 14, 1835.

1835. Gould, J. [Zeigt einen Toucan, mit merkwürdigen Federn auf dem Kopf, u. s. w.] < *Oken's Isis*, Bd. xxviii, 1835, pp. 523, 524.

P. Z. S., 1833, p. 38.

1835. **Gould, J.** Drey neue Vögel [Rhamphastidæ]. <*Oken's Isis*, Bd. xxviii, 1835, pp. 535, 536.

From *Z. P. S.*, 1833, pp. 69, 70.

1835. **Gould, J.** Ein neuer Toucan [Pteroglossus castanotis], nahe verwandt mit Pteroglossus aracari et regalis. <*Oken's Isis*, Bd. xxviii, 1835, p. 550.

P. Z. S. London, 1833, p. 119. Beschreibung von *Picus flavinucha* folgt.

1835. **Gould, J.** Rhamphastidæ Vig. <*Oken's Isis*, Bd. xxviii, 1835, pp. 1032–1038.

Uebersetzung: *Proc. Zool. Soc. Lond.*, ii, 1834, pp. 72–79.

1835. **Gould, J.** Ein neuer Toucan [Pteroglossus haematopygus], von Strickland mitgetheilt aus Südamerica. <*Oken's Isis*, Bd. xxviii, 1835, p. 1060.

Proc. Zool. Soc. Lond., ii, 1834, p. 147.

1835. **Owen, R.** Anatomie von Ramphastos ariel Vig. <*Oken's Isis*, Bd. xxviii, 1835, pp. 373, 374.

Aus d. *P. Z. S.*, 1832, pp. 42–46.

1836. **Gould, J.** Uebersicht der Rhamphastiden. <*Arch. f. Naturg.*, ii, (1), 1836, pp. 307–311.

Nach *P. Z. S.*, 1835, p. 156, *seq.*, mitgetheilt.

1837. **Gould, J.** Ueber Ramphastiden. <*Oken's Isis*, Bd. xxx, 1837, pp. 188–191.

Uebersetzung: *Proc. Zool. Soc. Lond.*, 1835, pp. 156–160.

1837. **Gould, J.** Ein neuer Toucan. <*Oken's Isis*, Bd. xxx, 1837, p. 123.

Proc. Zool. Soc. of Lond., 1835, p. 49.

1837. **Natterer, J.** [On a New Species of Araçari (Pteroglossus Gouldii).] <*P. Z. S.*, v, 1837, p. 44.

1837. **Editorial.** A Monograph of the Family Ramphastidæ. By J. Gould, F. L. S. Three parts, folio, 1833–36, London. <*Mag. of Zool. and Bot.*, i, 1837, pp. 187–192.

Extended review.

1839. **Waterhouse, G. R.** [Description of a New Species of Toucan (Pteroglossus nigrirostris).] <*P. Z. S.*, vii, 1839, pp. 111, 112.

1840. **Fraser, L.** [Exhibition of some specimens of the true Pteroglossus Azarae of Wagler and Vieillot.] <*P. Z. S.*, viii, 1840, pp. 60, 61.

1841–4–. **Gould, J.** (*Ed. Sturm.*) Monographie der Ramphastiden oder Tukanartigen Vögel. Aus dem Englischen übersetzt, mit Zusätzen und einigen neuen Arten vermehrt von J. H. C. F. Sturm und J. W. Sturm. . . . Nürnberg, 1841–4–.

This I have not seen, and can say little about. According to my information, it is in sm. folio, and was published in Parts. Parts i–iii are cited as of 1841, '42; Part iv as of 1847; there are said to be 5 Parts, each of ten colored lithographic plates and as many sheets of letter-press. I should judge by the title that the work is much modified from the original. See *Isis*, 1842, p. 235; 1843, p. 558; 1848, p. 695.

1842. **Anon.** Gould's Monographie der Ramphastiden, aus dem Englischen übersetzt, mit Zusätzen und einigen neuen Arten vermehrt von H. und G. Sturm. Nürnberg, Pamerstrasse S. Nr. 709. Hft. II. 1841. Kl. Fol. T. 10. <*Oken's Isis*, Bd. xxxv, 1842, pp. 235, 236.

1842. **Gould, J.** On two new Species of Trogon and a new species of Toucan from the Cordillierian Andes. <*Ann. Mag. Nat. Hist.*, ix, 1842, pp. 236–239.

Pteroglossus castaneorhynchus, p. 238.

1843. **Anon.** J. Gould's Monographie der Ramphastiden oder tukanartigen Vögel, aus dem Englischen übersetzt, mit Zusätzen und einigen neuen Arten vermehrt von Fr. u. W. Sturm. Nürnberg. Hft. III. 1842. Kl. Fol. S. 20. Taf. 10. ill. <*Oken's Isis*, Bd. xxxvi, 1843, p. 558, 559.

1843. **Gould, J.** [On two New Species of Birds from the collection formed by Sir Edward Belcher.] <*P. Z. S.*, xi, 1843, pp. 15, 16.

Pteroglossus erythropygius, *Pterocles personatus*, p. 15, spp. nn.

1843. **Gould, J.** [On an extensive Series of Toucans, with characters of two New Species.] <*P. Z. S.*, xi, 1843, pp. 147, 148.

Rhamphastos citreolæmus, *Pteroglossus pœcilosternus*, p. 147. spp. nn.

1844. GOULD, J. [On two new species of Ramphastidæ.] < *Ann. Mag. Nat. Hist.*, xiv, 1844, pp. 61, 62.

From *P. Z. S.*, Dec. 12, 1843.

1848. ANON. J. Gould's Monographie der Ramphastiden oder tukanartigen Vögel, übersetzt und mit Zusätzen und neuen Arten vermehrt von Fr. und W. Sturm. Nürnberg bey den Verfassern 1847. Heft IV. Kl. Fol. < *Oken's Isis*, Bd. xli, 1848, p. 695.

1849. [MITCHELL, D. W.] [Report of the purchase of a specimen of Rhamphastos carinatus.] < *P. Z. S.*, xvii, 1849, p. 94.

1853. GOULD, J. Description of a new species of Aulacorhamphus [cæruleogularis]. < *P. Z. S.*, xxi, 1853, p. 45.

1854. GOULD, J. A Monograph | of | the Ramphastidæ, | or | Family of the Toucans. | By | John Gould, F. R. S., | [etc., 7 lines.] | London: | printed by Taylor and Francis, Red Lion Court, Fleet street. | Published by the author, 20, Broad street, Golden Square. | 1854. 1 vol. folio. pp. 1–28 (title, &c., and introduction); 51 colored plates with as many sheets of letter-press; 1 uncolored plate (details) with 4 pp. of text.

This a second edition, "with new drawings of the old species, and figures and descriptions of no less than eighteen others", making 51 in all. The original edition was published in 1833–35, containing 33 species. There is a supplement, 1855. There is a German version of the orig. ed., 1841 *seq.*

The introduction gives a general account of the family, the species of which are so brilliantly illustrated in the colored plates. An additional plate, uncolored, with 4 pages of text, represents anatomical observations. The plates are as follows:

1. *R. toco*; 2. *R. carinatus*; 3. *R. brevicarinatus*; 4. *R. tocard*; 5. *R. ambiguus*; 6. *R. erythrorhynchus*; 7. *R. inca*; 8. *R. cuvieri*; 9. *R. citreolæmus*; 10. *R. osculans*; 11. *R. culminatus*; 12. *R. ariel*; 13. *R. vitellinus*; 14. *R. discolorus*. 15. *Pteroglossus araçari*; 16. *P. wiedi*; 17. *P. pluricinctus*; 18. *P. pæcilosternus*; 19. *P. castanotis*; 20. *P. torquatus*; 21. *P. erythropygius*; 22. *P. humboldti*; 23. *P. inscriptus*; 24. *P. viridis*. 25. *Beauharnasius ulocomus*; 26. *B. bitorquatus*; 27. *B. sturmi*; 28. *B. azaræ*; 29. *B. flavirostris*; 30. *B. mariæ*. 31. *Selenidera maculirostris*; 32. *S. gouldi*; 33. *S. langsdorffi*; 34. *S. nattereri*; 35. *S. reinwardti*; 36. *S. piperivora*. 37. *Andigena laminirostris*; 38. *A. hypoglaucus*; 39. *A. nigrirostris*; 40. *A. cucullatus*; 41. *A. bailloni*; 42. *Aulacoramphus sulcatus*; 43. *A. derbianus*; 44. *A. castaneorhynchus*; 45. *A. hæmatopygius*; 46. *A. cæruleocinctus*; 47. *A. prasinus*; 48. *A. wagleri*; 49. *A. albivittata*; 50, *A. atrogularis*; 51. *A. cæruleogularis.*—Plate uncolored of details.

Grammarhynchus, g. n., p. 26.

1855. GOULD, J. Description of a New Species of Aulacorhamphus. < *Ann. Mag. Nat. Hist.*, 2d ser., xv, 1855, pp. 390, 391.

From *P. Z. S.*, Feb. 22, 1853, p. 45.

1857. CASSIN, J. Notes on the North American species of Archibuteo and Lanius, and description of a new species of Toucan, of the genus Selenidera, Gould. < *Proc. Acad. Nat. Sci. Phila.*, ix, 1857, pp. 211–214.

The new Toucan is named *S. spectabilis*, p. 214.

1858. CASSIN, J. Description of a New Tanager from the Isthmus of Darien, and note on Selenidera Spectabilis, Cassin. < *Proc. Acad. Nat. Sci. Phila.*, x, 1858, pp. 177, 178.

1858. CASSIN, J. Descriptions of New Species of Birds of the genera Selenidera, Gould, and . . . < *Journ. Acad. Nat. Sci. Phila.*, iv, pt. i, Dec. 1858, pp. 5–8, pll. i–iii.

Selenidera spectabilis, pl. i, originally described in *Proc. Phila. Acad.*, 1857, p. 214.—(The remainder of the paper relates to *Numida* and *Phasidus*, and the title will be found in full under *Numididæ*.)

1858. GOULD, J. [On a New Species of Toucan (Andigena spilorhynchus).] < *P. Z. S.*, xxvi, 1858, pp. 149, 150.

1858. GOULD, J. On a new species of Toucan. < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, p. 388.

From *P. Z. S.*, March 23, 1858.

1865. Schmidt, Max. [Einiges über Ramphastos discolorus Gm.] <*Zool. Gart.*, v, 1865, pp. 267, 268.

1866. Gould, J. Description of a New Species of Toucan belonging to the Genus Aulacoramphus [A. cyanolæmus]. <*P. Z. S.*, xxxiv, 1866, p. 24.

1867. Cassin, J. A Study of the Rhamphastidæ. <*Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 100–124.

Monographic. 5 genn., 64 spp. *Burhynchus*, p. 102; *Tucanus*, p. 104; *Ramphodryas*, p. 106; *Baillonius*, p. 114; *Ramphastoides*, p. 117, subgg. nn. No new species are described. Cf. *Zool. Rec.*, iv, 1867, p. 88.

1867. Schmidt, Max. [Einiges über Ramphastos im Gefangenschaft.] <*Zool. Gart.*, viii, 1867.

1870. Stevens, R. P. The Toucan's Beak. <*Am. Nat.*, iv, 1870, pp. 622, 623.

On the adaptation and uses of the organ in *Rhamphastidæ.*

1871. Stevens, R. P. Tukanens Næb. <*Tidssk. for populære Fremst. af Naturvidensk.*, 4^e ser., iii, 1871, p. 80.

„Spørgsmaalet: i hvilket Øjemed har Tukanen sit ejendommelige Næb.“

1876. Gurney, J. H., Jr. Toucans in England in the Seventeenth Century. <*Zoologist*, 2d ser., xi, Mar., 1876, pp. 4838, 4839.

Extracts from Plot's *Nat. Hist. Oxfordshire*, 1677, and Leigh's *Nat. Hist. Lancashire*, 1700.

Cuculidæ.

[Note.—The literature of this family is extensive, but much of it relates to *Cuculus canorus* alone, or is otherwise excluded from presentation here.]

1832. Kaup, J. [J.] Saurothera marginata. Eine neue Art aus Mexico. < *Oken's Isis*, Bd. xxv, 1832, pp. 991, 992, pl. xxvi.

1833. Cawdor, *Lord*. [Exhibition of a Coccygus carolinensis killed in Wales.] < *P. Z. S.*, i, 1833, p. 26.

1835. Botta, P. E. Description du Saurothera californiana. < *Nouv. Ann. du Mus. d'Hist. Nat.*, iv, 1835, pp. 121–124, pl. (color.) 9.

1835. Thompson, W. [Coccygus americanus in Great Britain.] < *P. Z. S.*, iii, 1835, pp. 83, 84.

1837. Swainson, W. On the Natural History and Relations of the Family of Cuculidæ or Cuckoos, with a view to determine the series of their variation. < *Mag. of Zool. and Bot.*, i, 1837, pp. 213–225, 430–437.

It suffices to remark of this article that it is quinarian.

1839. Jardine, W. Horæ Zoologicæ. No. I. On the History and Habits of Crotophaga. < *Ann. Nat. Hist.*, iv, 1839, pp. 160–171, figg. 1, 2.

1840. Jardine, W. Horæ Zoologicæ. No. II. The History and Habits of Crotophaga continued from page 171, by the Notes of Mr. Schomburgk on the Manners of the Birds of Guiana. < *Ann. Nat. Hist.*, iv, 1840, pp. 318–322.

1844. Jardine, W. Uber das Betragen der Kielschnabel (Keel-Bils, Crotophaga). < *Oken's Isis*, Bd. xxxvii, 1844, pp. 913–918.

Ann. Nat. Hist., iv, 1839, pp. 160–171, and 318–322.

1844. Swainson, W. Ueber die Naturgeschichte und die Verwandschaften der Cuculidae. < *Oken's Isis*, Bd. xxxvii, 1844, pp. 512, 513.

Mag. Zool. and Bot. Lond., Bd. i, Hft. iii, 1837, pp. 213–225, 430–437.

1847. Lafresnaye, [F.] de. Sur le Saurothera vetula (Tacco Vieillard) de Vieillot. < *Revue Zoologique*, x, 1847, pp. 353–360.

4 esp. *S. jamaicensis*, p. 354; *S. dominicensis*, p. 355, spp. nn.

1849. Verreaux, J., *and* Des Murs, O. Nouvelle espèce de Coucou [Cuculus macrourus] se rapprochant du genre Piaya. < *Rev. et Mag. Zool.*, i, 1849, p. 276.

The species is identified by Gray with *Dromococcyx phasianellus* (Spix) of Brazil.

1849. Gray, G. R. Description of a new species of the genus Cultrides [C. rufipennis]. < *P. Z. S.*, xvii, 1849, p. 63, (Aves) pl. x.

From Mexico. (The genus is a synonym of *Neomorphus* Gloger, 1827.)

1850. Gray, G. R. Description of a new species of the genus Cultrides [C. rufipennis.] < *Ann. Mag. Nat. Hist.*, 2d ser., v, 1850, p. 224.

From *P. Z. S.*, Apr. 24, 1849, p. 63.

1852. Strickland, H. E. On a new species of Coccyzus [C. pumilus] from Trinidad. < *Jard. Contrib. Orn.*, 1852, p. 28, pl. lxxxii.

1854. Gloger, C. W. L. Ein seltsamer Zug in der Fortpflanzung der amerikanischen Kuckuke [Coccygus americanus]. < *J. f. O.*, ii, 1854, pp. 219–232.

Mainly from Audubon and Nuttall.

1854. Hartlaub, G. Beiträge zur exotischen Ornithologie. < *J. f. O.*, ii, 1854, pp. 409–421.

Descriptions of various birds, with critical comment; and, in particular, a review of numerous species of *Cuculidæ*.

1855. Jones, J. C. [Communication presenting a specimen of Geococcyx (mexicanus?).] < *Proc. Boston Soc. Nat. Hist.*, v, 1855, p. 258.

1860. Reinhardt, J. Bemærkninger om Redebygningen og Forplantningsforholdene hos Crotophaga-Slægten. 8vo. pp. 31.

Aftryk af *Oversigt over det Kgl. danske Vidensk. Selsk. Forhandlinger* o. s. v., Januar 1860.

1862–63. Cabanis, J., *and* Heine, F. Museum Heineanum. | — | Verzeichniss | der | ornithologischen Sammlung | des | Oberamtmann | Ferdinand Heine | auf | Gut St. Burchard | vor | Halberstadt. | Mit kritischen Anmerkungen und Beschreibungen fast | sämmtlicher Arten | systematisch bearbeitet | von Dr. Jean Cabanis, | erstem Custos der königlichen zoologischen Sammlung in Berlin | und | Ferdinand Heine, | Stud. philos. | — | IV. Theil, | die Klettervögel | enthaltend. | Heft I: Kuckuke und Faulvögel. | — | Halberstadt, 1862–63. | In Commission der Frantz'schen Buchhandlung (G. Loose). 8vo. 2 p. ll., pp. 1–229.

Auch unter d. Titel: Museum | Ornithologicum | Heineanum. | — | Pars IV. Scansores. | Sectio I. | Cuculidæ. Argornithidæ.

The greater part of this Heft is occupied with the *Cuculidæ* (to p. 122), and these sheets all date 1862. The rest consists of the *Bucconidæ* (pp. 123–128 in 1862, rest in 1863) to p. 153, *Trogonidæ* to p. 212 (1863), and *Galbulidæ* to p. 229 (1863). The new names proposed are as follows:

Cuculidæ (1862). *Lamprococcyx*, p. 11; *L. chrysochlorus*, p. 11; *Chalcococcyx*, p. 15; *Penthoceryx*, *Misocalius*, p. 16; *Cacangelus*, p. 17; *Cacomantis threnodes*, p. 19; *C. infaustus*, p. 23; *Heteroscenes*, p. 26; *Hiracococcyx*, p. 27; *H. sparverinus*, p. 28; *Caliechthrus*, p. 31; *Cuculus leptodetus*, p. 34; *C. canorinus*, p. 35; *Eudynamis chinensis* [sic—lege *sinensis*], p. 52; *Ceuthmochares*, p. 60; *Rhopodytes*, p. 61; *Rhamphococcyx*, p. 65; *Glaucococcyx*, p. 71; *Cochlothraustes*, p. 74; *Coccygus nesiotes*, p. 78; *Nesococcyx*, p. 79; *Pyrrhococcyx mesurus*, p. 83; *P. guianensis*, p. 85; *P. pallescens*, p. 86; *Acentetus*, p. 102; *Centrococcyx*, p. 109; *C. moluccensis*, p. 113; *Pyrrhocentor*, p. 117; *P. unirufus*, p. 118; *Nesocentor*, p. 118.

Buccondiæ (1863—none new in 1862). *Malacoptila aequatorialis*, p. 134; *M. blacica*, p. 137; *Nystalus*, p. 139; *Hypnelus*, p. 143; *Nothriscus*, p. 146; *Argicus*, p. 148; *Notharchus*, p. 149.

Trogonidæ (1863). *Pyrotrogon orrhophaeus*, p. 156; *Oresciuis* (= *Oreskios*, Bp.), p. 161; *Trogon virginalis*, p. 173; *T. propinquus*, p. 175; *Pothinus*, p. 180; *Aganus*, p. 184; *A. crissalis*, p. 190; *? A. devillei*, p. 191; *Harpalophorus*, p. 199; *Troctes*, p. 201; *T. mesurus*, p. 202; *Tanypeplus*, p. 205; *Leptuas*, p. 206.

Galbulidæ (1863). *Brachycex*, p. 214; *Urocex*, p. 216; *Caucalias*, p. 218.

1863. Heine, F. Cuculidina. < *J. f. O.*, xi, 1863, pp. 349–358.

Lamprococcyx chrysites, *L. resplendens*, p. 350; *Cacomantis dysonymus*, *C. querulus*, *Cuculus telephonus*, p. 352; *Coccyzusa gracilis*, p. 356, spp. nn.—*Thamnias*, p. 357; *Eutroctes*, p. 358, new generic names in other groups.

1864. Schlegel, H. Cuculi. *Mus. Hist. Nat. Pays-Bas*, 5e livr., 1864, pp. 1–86.

The *Cuculi* of this author are a superfamily group, consisting of the *Indicatoridæ*, *Leptosomatidæ*, *Musophagidæ*, *Coliidæ* and *Opisthocomidæ!* of authors, besides the *Cuculidæ* proper. Each of these families is treated as if of a single genus, excepting the last-named, in which the author allows several. The 122 species treated are represented in the collection by 842 specimens.

1864. Sclater, P. L. On the Species of the American genus Coccyzus. < *P. Z. S.*, xxxii, 1864, pp. 119–122.

Synonymatic, diagnostic, and critical synopsis of 8 spp. *C. bairdi*, p. 120, sp. n.

1864. Sclater, P. L. Notes on the Species of Cuckoos of the Genus Neomorphus. < *P. Z. S.*, 1864, pp. 249, 250.

Diagnosis of two species.

1866. Sclater, P. L. On a New American Cuckoo of the Genus Neomorphus [N. salvini]. < *P. Z. S.*, xxxiv, 1866, pp. 59, 60, pl. v.

With synopsis of 3 spp.

1869. Walden, *Lord*. On the Cuculidæ described by Linnæus and Gmelin, with a sketch of the Genus Eudynamis. < *Ibis*, 2d ser., v, 1869, pp. 324–346, pl. x.

The author rightly holds that the old names must be either identified or disposed of. He handles the subject critically and patiently, accounting for most of the names.

"Of the 22 Linnæan species of *Cuculus*, 3 belong to other families, and 11 of the remaining 19 have been more or less satisfactorily identified, leaving 8 undetermined. Of these, 2 seem to be beyond hope at present; but the names of the last 6 can, it is shown, be referred without much fear of error to the species for which they were intended. The 2 Linnean species

1869. Walden, *Lord*—Continued.
of *Crotophaga* are identical. Gmelin named 24 species and 10 varieties of *Cuculus* in addition to those given by Linnæus, besides 2 species which belong to other families, 2 which really are Cuckoos though placed in other genera, and 1 *Crotophaga.* Of these 29 only 9 can, from one cause or another, retain Gmelin's names. The genus *Eudynamis* is specially treated, 9 species being recognized, one of which *E. ransomi*, Bp. (*Consp. Av.*, i, p. 101) is figured." (*Zool. Rec. for* 1869, p. —.)

1870. Sclater, P. L. Further [cf. P. Z. S., 1864, pp. 119 seq.] Notes on the Cuckoos of the Genus Coccyzus. < *P. Z. S.*, xxxviii, 1870, pp. 165–169.
Synonymatic and diagnostic synopsis of 8 spp., with critical commentary.

1871. Dresser, H. E. [Exhibition of a specimen of Coccyzus americanus found in Great Britain.] < *P. Z. S.*, xxxix, 1871, p. 299.

1872. Sclater, P. L. [Remarks on Exhibition of a Skin of the Yellow-billed Cuckoo (Coccyzus americanus) from Buenos Ayres.] < *Proc. Zool. Soc. London*, 1872, p. 496.

1872. Sclater, P. L. [Remarks on Exhibition of a specimen of Coccyzus erythrophthalmus killed in Ireland.] < *Proc. Zool. Soc. London*, 1872, p. 681.
The same specimen formerly recorded (*Zoologist*, p. 2943) as *C. americanus.* The only other instance of the occurrence of this bird in Europe is stated to be in Italy (Bolle, *J. f. O.*, 1858, p. 457; Selys-L., *Ibis*, 1870, p. 452; Salvadori, *Fn. Ital.*, 1871, p. 42).

1872. Blake-Knox, H. American Cuckoo [Coccygus erythrophthalmus] in Ireland. < *Zoologist*, 2d ser., vii, 1872, p. 2943.
Erroneously given as *C. americanus:* cf. *P. Z. S.*, 1872, p. 681.

1872 Clermont, *Lord.* Blackbilled American Cuckoo [Coccygus erythrophthalmus] in Ireland. < *Zoologist*, 2d ser., vii, 1872, p. 3022.

1873. Cabanis, J. [Coccygus euleri, n. sp. aus Brasilien.] < *J. f. O.*, 1873, pp. 72, 73.

1873. Coues, E. Range of the Geococcyx californianus. < *Am. Nat.*, vii, 1874, p. 751.

1873. Lawrence, G. N. Remarks on Neomorphus pucherani and its Allies. < *Ibis*, 3d ser., iii, 1873, pp. 287–295.
Historical. Descriptive synopsis of 4 spp. of the genus.

1874. Anon. [The Road-runner—Geococcyx californianus.] < *Am. Sportsman*, iv, 1874, p. 395.
From San Luis Obispo, Cal., *Tribune.*

1874. Hudnut, J. O. The Paisano [Geococcyx californianus] not the Chiacalaca [Ortalida sp.] < *Field and Stream* (newspaper of Chicago, Ill.), Apr. 4, 1874.

1875. Anon. The Bird Road-Runner [Geococcyx californianus.] < *Rod and Gun*, vi, Sept. 25, 1875, p. 396.
Reprint from St. Helena, Cal., *Star.*

1875. Benner, F. Is the yellow-billed cuckoo parasitic? < *Forest and Stream*, v Sept. 16, 1875, p. 83.

1875. Dubois, A. Note sur un Coccyzus tué en Belgique. < *Bull. Acad. Roy. Belgique*, xxxix, Jan., 1875, pp. 9–11.
Pas vue moi-même. Un individu du *C. americanus* tué dans le Bois-de-Lessines, le 22 Oct 1874.

1875. "Parvus." American Cuckoo. < *Rod and Gun*, vii, May 1, 1875, p. 75.
Mere statement of fact that the American species make nests of their own.

1876. Chambers, V. T. The Chapparal Cock. < *Am. Nat.*, x, No. 6, 1876, p. 373.
Request for information respecting food of *Geococcyx californianus.*

1878. Bendire, C. Breeding habits of Geococcyx californianus. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 39.

1878. Jones, J. M. Nesting of Cuckoo [(Coccygus erythrophthalmus) near Halifax, N. S.]. < *Forest and Stream*, xi, Oct. 10, 1878, p. 204.

1879. Brewer, T. M. Parasitic Birds [Cuculidæ]. < *The Oölogist*, iv, No. 11, June, 1879, p. 85.

1879. Bryant, W. E. Love-making in the Road-Runner [Geococcyx californianus]. < *Science News*, i, No. 7, Feb. 1, 1879, p. 112.

1879. Miller, *Miss* F. Strange Story of a California Bird [Geococcyx californianus]. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 109, 110.

Habits as observed in semi-domestication.

Psittacidæ.

1733. DUVERNEY, J. G. Anatomie. <*Hist. de l'Acad. Roy. des Sci. de Paris* pour l'année 1682, i, 1733, pp. 344, 345.

Sur le bec d'un Perroquet, p. 344.

1752. CERATI, *l'Abbe.* [Observation sur l'âge auquel peuvent parvenir les Perroquets.] <*Hist. de l'Acad. Roy. des Sci.* pour l'année 1747, 1752, pp. 57, 58.

Une espèce de Cacatua—près de cent-vingt années.

1753. ISNARD, A. D. DE. [Observation sur un Perroquet qui pondit un œuf en France.] <*Hist. de l'Acad. Roy. des Sci.* pour l'année 1727, 1753, pp. 25, 26.

1801–05. LEVAILLANT, F. Histoire Naturelle | des Perroquets, | par François Levaillant. | — | Tome premier [second]. | [Monogram.] | A Paris, | Chez Levrault, Schoell et C.e, rue de Seine S. G. | — | Strasbourg, de l'imprimerie de Levrault. | An xii (1804). [1801–1805.] Pub. livr. I–XXIV, titled and paged for 2 vols. folio. Vol. I, half-title, title, dedication, preface, each 1 leaf. Text pp. 1–135, 1 leaf (table); pll. col'd 1–71. Vol. II, half-title, title, each 1 leaf. Text pp. 1–111; pll. 72–139.

This is the earliest of the great Parrot Monographs; a splendid work, worthy associate of the others from the same celebrated source. The two volumes of 139 plates, describing 90 species of the family, were followed in 1837–38 by a third (supplementary) volume by Bourjot St. Hilaire, with 111 plates of 88 species; to which a fourth vol. of 48 plates and about as many species was added by De Souancé in 1857–58, these together making by far the most extensive Iconography of the Parrots extant.

It is to be always regretted, for Levaillant's sake, that, while he described so carefully and so brilliantly figured numberless species of birds, many of them before unknown, he did not in any of his four great works use the system of nomenclature which would have entitled him to full recognition. He is the real author of very many new species to which systematic names were later applied by Vieillot and others, who consequently get all the perfunctory credit that should have gone to Levaillant. Buffon, Brisson and Levaillant are the three great French names in ornithology which are not citable for species.

The beautiful plates of this work were drawn from nature, engraved and printed in colors under the direction of Bouquet. The text (as is not very often the case with Iconographies like this) is much more than a brief description of the objects represented, occupying usually more than one leaf to a plate, and going into many particulars concerning the species of this family. The whole work forms the corner-stone of the special literature of *Psittacidæ*.

1801. MOROZZO, [C. L.] Letter from Count Morozzo to C. Lacepede, respecting a Parrot hatched at Rome; together with some Observations on the duration of the Life of these Birds. <*Tilloch's Philos. Mag.*, xii, 1801, pp. 235–246.

From *Journ. de Physique*, Ventose, An 10.

I. History of the laying and incubation of a pair of Brazilian Parrots. II. Their habits, attachment, mode of rearing their young. III. Description of ♂, ♀, and young (= Amazon Parrot of Barrere, *Fr. Equinox.*, p. 144). IV. Instances of some Parrots which have laid in Europe. V. Conjectures on the duration of the life of Parrots, including a table of the duration of incubation and life of several birds, and periods of gestation in several mammals, in comparison with the duration of their life.

1802. MOROZZO, [C. L.] Histoire d'un Perroquet né à Rome, suivie de quelques observations sur la durée de la vie des oiseaux. <*Journ. de Phys., Chim., et Hist. Nat.*, liv, 1802, pp. 180–193.

L'histoire de ces Perroquets, et celle de leur ponte et de leur incubation.—Leurs habitudes, amours, et la manière d'élever leurs petits.—Description de ces oiseaux.—Conjectures sur la vie des perroquets, etc.; "j'en ai vu un moi-même qui étoit depuis 75 ans dans la même maison." Table de la durée de l'incubation, et de la vie de plusieurs oiseaux.

1803. MOROZZO, C. L. Relation De deux fétus produits par les mêmes perroquets qui dans l'annèe 1801 ont donné un petit, à Rome. <*Journ. de Phys., Chim., et Hist. Nat.* lvi, 1803, pp. 347–350.

1820. KUHL, H. H. Kuhl, Ph. Dr. Ac. C. L. C. N. C. S. | Conspectus Psittacorum. | Cum specierum definitionibus, novarum descriptionibus, | synonymis et circa patriam singularum naturalem | adversariis, | adjecto indice museorum, ubi earum | artificiosae exuviae servantur. | Cum Tabulis III. aeneis pictis. | [n. d., n. p.; Bonnae, 1820.] 1 vol. 4to. pp. 104, pll. iii.

Novis Actis Acad. Cæs. Leop.-Carol. Nat. Cur., vol. x, pars i, 1820, pp. 4–104.

De speciebus 209 Psittacorum tractat auctor celeberrimus, quarum novas "circa 40, nusquam descriptas" continet monographia sua. Species signo † notatas vidit ipse et sec. naturam descripsit.

Species omnes ad genus *Psittaci* unicum relatæ sunt, hoc genere in sect. vi. diviso, sc., 1, *Ara;* 2, *Convrvs* (p. 4); 3, *Psittacvla;* 4, *Psittacus* ipse; 5, *Kakadoe!* (p. 11); 6, *Probosciger* (p. 13).—I. *Ara*, A, colore coccineo, spp., 1–3; B, colore caeruleo, 4, 5; C, colore viridi, 6–10. II. *Convrvs*, A, Americani, 11–28; B, Africani, 29–33; C, Asiatici, 34–61; D, Australes, 62–92. III. *Psittacvla*, A, Americani, 93–102; B, Africani, 103–105; C, Asiatici, 106–115; D, Australes, 116–119. IV. *Psittacus*, A, Americani, 120–144; B, Africani, 145–147; C, Asiatici, 148–150; D. Australes, 151, 152. V. *Kakadoe*, A, Indici, 153–156; B, Australes, 157–164. VI. *Probosciger*, 165, 166.—Psittaci patriæ incertae, 167–171.—Psittaci dubii, aut auctori incogniti, ab aliis descripti, 172–209.

Species sequentes sanè novas asterisco notavi; reliquæ forsan prius descriptæ.

10. *Psittacus illigeri*, Temm. et Kuhl, p. 19 (=*P. fuscatus*, Mus. Berol, nomine inepto). 24. *P. viridissimus*, Temm. et Kuhl, p. 25. 63. *P. platurus*, Temm. et Kuhl, p. 43. 67. *P. *erythronotus*, p. 45. *P. *auriceps*, p. 46. 75. *P. *chlorolepidotus*, p. 48. 77. *P. *ultramarinus*, p. 49. 78. *P. *chrysostomus*, p. 50, pl. i. 82. *P. *spurius*, p. 52. 84. *P. *cyanomelas*, p. 53. 86. *P. icterotis*, Temm. et Kuhl, p. 54. 90. *P. *brownii*, p. 56. 94. *P. *st. thomae*, p. 58. 104. *P. *swinderniamos*, p. 62, pl. ii ("*swinderianus*," lapsu). 111. *P. simplex*, p. 66. 113. *P. *micropterus*, p. 67. 125. *P. brachyurus*, Temm. et Kuhl, p. 72. 127. *P. *maximiliani*, p. 72. 133. *P. cyanotis*, Temm. et Kuhl, p. 77. 134. *P. *erythrurus*, p. 77. 148. *P. *spadiceocephalus* (!), p. 84. 158. *P. *tenuirostris*, p. 88. 15.9 *P. *eos*, p. 88. 162. *P. *temminkii* (sic), p. 89. 164. *P. *leachii*, p. 91, pl. iii. 166. *P. *goliath*, p. 92. 168. *P. *bitorquatus*, p. 92. 171. *P. *fuscicollis*, p. 95

12. *P. auricapillus*, "Licht.," p. 20. 15. *P. leucotis*, "Licht.," p. 21. 96. *P. surdus*, "Ill.," p. 59. 97. *P. melanonotus*, "Licht.," p. 59. 102. *P. vulturinus*, "Ill.," p. 62. 121. *P. leucogaster*, "Ill.," p. 70.

De Vaillanti opere "Histoire Naturelle des Perroquets," pp. 102–104.

Exemplum hujusce opusculi quod examinavi in *Biblioth. Reip. Amer.* olim cl. Okeno d. d. auctor, ut patet notâ msc. ante titulum: „Herrn Hofrath Dr Oken vom V'fs."

1821. KUHL, H. [Auszüge aus seinem Conspectus Psittacorum.] < *Oken's Isis*, Jahrg. v, 1821, pp. 951–962.

Die Originalausgabe ist enthalten in den *Neue Verh. der Kaiserl.-Leop.-Carol. Acad.*, Bd. x., Abth. i, 1820, pp. 4–104; auch besonders gedruckt, 4to, Bonnæ, 1820. Der obige Aufsatz besteht nur aus einer Synopsis der Gattungen und einem Verzeichniss der Arten, nebst einem Anhange des Herausgebers über die Levaillant'sche „Naturgeschichte der Papageien."

1821. TEMMINCK, C. J. Account of some new Species of Birds of the Genera Psittacus and Columba, in the Museum of the Linnean Society. < *Trans. Linn. Soc.*, xiii, pt. i, 1821, pp. 107–130.

Psittacus cookii, p. 111; *P. solandri*, p. 113; *P. nasicus*, p. 115; *P. flavigaster*, p. 116; *P. baueri*, p. 118; *P. brownii*, p. 119; *P. multicolor*, p. 119; *P. icterotis*, p. 120; *P. venustus*, p. 121; *P. pulchellus*, p. 122. *Columba dilopha*, p. 124; *C. magnifica*, p. 125; *C. leucomela*, p. 126; *C. scripta*, p. 127; *C. humeralis*, p. 128; *C. phasianella*, p. 129. Memoir in French.

1822. EDITORIAL. Notice regarding the History and Distribution of the genus Psittacus or Parrot. < *Edinb. Philos. Journ.*, vii, 1822, pp. 398–401.

1823. DESM[AREST], A. [G.] Noticé sur les Aras Bleus nés en France, et acclimatés dans le dép. du Calvados; par M. J.-V. Lamouroux. . . . < *Féruss. Bull.*, 2^{e} sect., ii, 1823, pp. 451, 452.

Extraite des *Mém. Soc. Linn. de Paris*, ii, 1823?, pp. 155–162.

1823. GABRIAC, MARQUIS DE. Notice Sur la Ponte faite à Paris par des Perruches de l'Amérique méridionale, de l'espèce dite Pavouane, dans les mois de juillet et d'août de l'année 1822. < *Mém du Mus. d'Hist. Nat.*, x, 1823, pp. 309–313.

Addition à la notice précédente, par Geoffroy-St.-Hilaire, pp. 314–316.

1823? LAMOUROUX, J. V. F. Notice Sur des aras bleus nés en France et acclimatés dans le departement du Calvados. < *Mém. Soc. Linn. de Paris*, ii, 1823?, pp. 155–162.

1823. V.–Y. Conspectus Psittacorum. . . . Auct. H. Kuhl. < *Féruss. Bull.*, 2e sect., iv, 1823, p. 208, 209.

Revue de cet ouvrage.

1824. DESM[AREST, A. G.] Description de quelques espèces d'oiseaux des genres Perroquet et Pigeon du Muséum de la Société linnéenne de Londres; par M. C. J. Temminck. < *Féruss. Bull.*, 2e sec., i, 1824, p. 278, 279.

Extr. des *Trans. Linn. Soc.*, xiii, pt. i, p. 107.

1824. PAYRAUDEAU, B. C. Notice sur la ponte faite a Paris par des Perruches de l'Amérique méridionale, de l'espèce dite Pavouane, dans les mois de juillet et d'août de l'année 1822; par M. le Mis. de Gabriac, . . . < *Féruss. Bull.*, 2e sect., ii, 1824, p. 203.

Extraite des *Mém. du Mus. d'Hist. Nat.*, x, 1823, pp. 309–313.

1824–25. VIGORS, N. A. Descriptions of some rare, interesting, or hitherto uncharacterized subjects of Zoology. < *Zool. Journ.*, i, 1824, pp. 409–418, 526–542, pll. 13, 14, 16; pll. suppl. 1–4; ii, 1825, pp. 234–241, pl. 8.

Muscicapa lathami, p. 410, pl. 13, n. sp.; *Anthus richardi*, Vieill., p. 411, pl. 14; *Psittacula kuhli*, p. 412, pl. 16, n. sp.; *Platycercus* (g. n.?, p. 527) *pacificus*, Lath., pl. suppl. 1; *P. auriceps*, Kuhl, pl. 2; *P. ulietanus*, Lath., pl. 3; *Psittacus pyrhopterus*, Lath., pl. 4; Vol. ii, *Anthropoides stanleyanus*, p. 234, pl. 8.

1825. [ANON.] Notice regarding the Breeding of the Peacock Parrot of South America [in confinement]. < *Edinb. Philos. Journ.*, xii, 1825, pp. 184, 185.

From *Bulletin Universel*. Cf. *Mém. du Mus. d'Hist. Nat.*, x, 1823, pp. 309–313, and *Féruss. Bull.*, 2e sect., ii, 1824, p. 203.

1825. VIGORS, N. A. On a new genus of Psittacidæ. < *Zool. Journ.*, ii, 1825, pp. 387–390.

This is a subhead, being part of the third instalment (pp. 368–405) of the series of papers entitled "Sketches on Ornithology; or," etc.

The new genus is *Psittacara*, p. 387; of which are described *Ps. frontatus*, p. 389, and *Ps. lichtensteinii*, p. 390, spp. nn.

Féruss. Bull., ix, 1826, pp. 91, 92; *Isis*, 1830, pp. 1043–1045.

1826. LESSON, R. P. Sur un genre nouveau de la famille des Perroquets; par Vigors. . . . < *Féruss. Bull.*, 2e sect., ix, 1826, p. 91, 92.

Psittacara. Extrait du *Zool. Journ.*, ii, 1825, pp. 357–390, *q. v.*

1826. LESSON, [R. P.] Description de quelques objets de zoologie rares, intéressans ou mal décrits; par N. A. Vigors . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 105.

Zool. Journ., iv, Janv. 1825, p. 526.

1826. LESSON, R. P. Esquisses ornithologiques, etc.; observations sur le groupe des Psittacidæ, et sur les Perroquets connus des anciens; par N. A. Vigors. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, pp. 111, 112.

"*Zool. Journ.*, avril 1825, p. 37."

1827. VIGORS, N. A. A Reply to some Observations in the "Dictionnaire des Sciences Naturelles," upon the newly characterized groups of the Psittacidæ. < *Zool. Journ.*, iii, 1827, pp. 91–123.

1829. MICHEL, —. Les Perroquets, | leur éducation physique et morale; | ouvrage | dans lequel on établit des moyens pour les | guérir de leurs maladies. | Par Michel, | Bachelier ès-lettres, | ancien oiseleur du roi de Westphalie. | Paris. | Audot, Libraire-Éditeur, | rue des Maçons-Sorbonne, No. 11. | 1829. 1 vol. 18mo. 2 p. ll., pp. 1–146, 1 l.

1829. TEMMINCK, C. J. Notice sur quelques espèces nouvelles d'oiseaux des genres Psittacus et Columba dans le Muséum de la Société linnéenne par C. J. Temminck. (Lin. transact. xiii. P. 1. p. 107.). < *Oken's Isis*, Bd. xxii, 1829, pp. 1194–1209.

Le mémoire ici se trouve réproduit en entier, des *Linn. Soc. Trans.*, 1821, *q. v.*

1830. Vigors, N. A. Seltene Gegenstände aus der Zoologie [Papageyen aus Australien]. < *Oken's Isis*, Bd. xxiii, 1830, pp. 824, 825.

Aus der *Zoöl. Journ.*, Vol. i, Nr. iv, 1825, p. 526.

1830. Vigors, N. A. Ornithologische Skizzen. Fortsetzung. Ueber die den Alten bekannten Papageyen. < *Oken's Isis*, Bd. xxiii, 1830, pp. 831–839.

Aus der *Zool. Journ.*, Vol. ii, Nr. 5, April 1825, p. 37.

1830. Vigors, N. A. Psittacara, neue Sippe der Psittaciden. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1043–1045.

Uebers. aus. d. *Zool. Journ.*, ii, 1825, pp. 387–390.

1831. Bennett, E. T. Observations on the Hyacinthine Maccaw. < *Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 211–213.

Technical and historical.

1832. Lear, E. Illustrations | of | the family of | Psittacidæ, | or | Parrots: | the greatest part of them | species hitherto unfigured, | containing forty-two lithographic plates, | drawn from life, and on stone, | By Edward Lear, A. L. S. | — | London: | published by E. Lear, 61 Albany street, Regent's Park. | — | 1832. 1 vol. folio. Title, list of subscribers, dedication, list of plates, each 1 leaf; and 42 colored plates.

These plates are the most beautiful illustrations of Parrots, drawn with art as well as with fidelity to nature. There is no text. The following is a list of the plates:

1. *Psittacus badiceps.* 2. *Plyctolophus rosaceus.* 3. *P. galeritus.* 4. *P. sulphureus.* 5. *P. leadbeateri.* 6. *Calyptorhynchus baudini.* 7. *Macrocercus aracanga.* 8. *M. ararauna.* 9. *M. hyacinthinus.* 10. *Psittacara patachonica.* 11. *P. leptorhyncha.* 12. *P. nana.* 13. *Nanodes undulatus.* 14, 15. *Platycercus erythropterus.* 16. *P. tabuensis.* 17. *P. baueri.* 18. *P. barnardi.* 19. *P. palliceps.* 20. *P. brownii.* 21, 22. *P. pileatus.* 23, 24. *P. stanleyii.* 25. *P. unicolor.* 26. *P. pacificus.* 27. *Palæornis novæ-hollandiæ.* 28. *P. melanura.* 29. *P. anthopeplus.* 30. *P. rosaceus.* 31. *P. columboides.* 32. *P. cucullatus.* 33. *P. torquatus.* 34. *Trichoglossus rubritorquis.* 35. *T. matoni.* 36. *T. versicolor.* 37. *Lorius domicella.* 38. *Psittacula kuhlii.* 39. *P. tarantæ.* 40. *P. torquata.* 41. *P. rubrifrons.* 42. *P. swinderiana.*

1832. Wagler, [J.] Monographia | Psittacorum. | Auctor | [Joannes] Wagler. | [n. d. n. p. München. 1832.] 4to. Halb-titel, 1 Blatt, Vorwort 2 Blätter, pp. 469–750, Taf. illum. xxii–xxvii.

The pagination and also the numeration of the plates show this book to be a part of something else. It is extracted from the *Denksch. Acad. München*, i, 1832, without indication of the fact. Wagler's pieces mostly have some mechanical defect of date, title, pagination, or other, showing either ignorance or negligence of the requirements of workmanlike printing.

Gedrängter Ueberblick der Geschichte der Papageien, p. 469; Die Papageien der Alten, p. 470; Die Pap. Asiens, p. 474; Die Pap. Africa's, p. 476; Die Pap. America's, p. 478; Die Pap. Australiens, p. 481. Gedrängter Vergleich der Pap. mit dem Nagern und Einiges über ihre Stellung im natürlichen Systeme, p. 483.—Conspectus systematicus generum et specierum ex ordine Psittacorum, adjectis generum characteribus, pp. 489–505. *Polytelis*, p. 489; *Nymphicus*, *Prioniturus*, p. 490; *Deroptyus*, *Euphema*, p. 492; *Charmosyna*, p. 493; *Eos*, *Coriphilus*, p. 494; *Domicella*, *Eclectus*, *Psittaçodis*, p. 495; *Pionus*, p. 497; *Nasiterna*, p. 498; *Triclaria*, *Sittace*, p. 499; *Tanygnathus*, *Coracopsis*, p. 501; *Dasyptilus*, p. 502; *Corydon*, *Cacatua*, p. 504; *Licmetis*, *Nestor*, p. 505, are genera, apparently new, of Wagler's.

Exposito specierum, pp. 506–697, gives the full description of the species, among which are doubtless many new ones; but none are marked as such.

Characteres specierum ex ordine Psittacorum, pp. 698–738; Psittaci auctori dubii, pp. 739–747; Index, pp. 748–750.

Pl. xxii, *Eclectus linnaei;* xxiii, *Psittacodis paragua;* xxiv, f. 1, *Pionus vulturinus*, f. 2, *Sittace euops;* xxv, *Sittace pachyrhyncha;* xxvi, *Sittace glauca;* xxvii, *Calyptorhynchus stellatus.*

1834. Vigors, N. A. [Kein Gabelbein bei Psittacus, u. s. w.] < *Oken's Isis*, Bd. xxvii, 1834, p. 820.

Auszug aus *Philos. Mag.*, Bd. ix, 1831.

1835. Pöppig, [E.] Psittacus cyanolyseos Mol. < *Arch. f. Naturg.*, i, (1,) 1835, pp. 87, 88.

Cf. Poeppig, *Reise in Chili*, u. s. w., i, 1835, p. 451.

1836. Selby, P. J. The | Naturalist's Library. | Edited by | Sir William Jardine, Bart., | F. R. S. E., F. L. S., etc., etc. | Vol. X. | — | Ornithology. | Parrots. | By Prideaux John Selby, Esq., | F. R. S. E., F. L. S., M. W. S., etc., etc. | — | Edinburgh: | W. H. Lizars, [etc.]. [No date. 1836.] 1 vol. sm. 12mo. Portrait of Bewick, eng. col'd title, other title, contents, each 1 leaf, pp. 7–219, cuts, pll. col'd 1–30 (+ portrait and vignette = 32 pll.).

Being Vol. VI of general arrangement. Contains memoir of Bewick, likewise of D'Aubenton, and an account of *Psittaci*.

Pl. 1, *Palæornis barrabandi*; 2, *alexandri*; 3, *malaccensis*. 4, *Arara patagonica*. 5, *Microcercus militaris*; 6, *M. ararauna*; 7, *M. aracanga*. 8, *Psittacara nobilis*. 9, *Psittacus festivus*; 10. *Ps. erythacus*. 11, *Agapornis swinderianus*. 12, *Nestor hypopolius*. 13, *Plyctolophus leadbeateri*; 14, *P. sulphureus*. 15, *Calyptorynchus stellatus*. 16, *Microglossus aterrimus*. 17, *Dasyptilus pequetii*. 18, *Lorius domicillus*. 19, *Charmosyna papuensis*. 20, *Trichoglossus swainsonii*; 21, *T. versicolor*; 22, *T. pyrrhopterus*. 23, *Coriphilus kuhlii*. 24, *Psittaculus galgulus*. 25, *Platycercus pennantii*; 26, *P. palliceps*. 27, *Nanodes venustus*; 28, *N. undulatus*. 29, *Pezoporus formosus*. 30, *Nymphicus novæ hollandiæ*.

This is rather sketchy, an outline of the family, with figures of the leading types.

1836. Vigors, N. A. [Characters of two new Parrots (Psittacus augustus and P. guildingii).] < *P. Z. S.*, iv, 1836, p. 80.

1836. White, W. H. Facts on the Measure of the Length of Life of a Species of Parrot; with Suggestions for ascertaining the Average Period of Existence of the whole Animal Creation; and an Anecdote of a Parrot. < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 347–349.

1837–38. Bourjot St.-Hilaire, A. Hoistoire Naturelle | des Perroquets, | troisième volume | (supplémentaire), | pour faire suite aux deux volumes de Levaillant, | contenant les espèces laissées inédites par cet auteur ou récemment découvertes. | Ouvrage destiné | a compléter une monographie figurée de la famille des Psittacidés, le texte renfermant la | classification, la synonymie, et la description de chaque espèce; | suivi d'un index général des espèces décrites dans tout l'ouvrage; | par le docteur | Al. Bourjot Saint-Hilaire, | Professeur du Zoologie au Collège Royale de Bourbon. | Les figures lithographiées et coloriées avec soin | par | M. Werner, | Peintre attaché au Muséum d'Histoire Naturelle. | — | Paris, | Chez F.-G. Levrault, Libraire Éditeur, rue de la Harpe, n.° 81. | Strasbourg, | même maison, rue des Juifs, n.° 33. | 1837–1838. 1 vol. in-fol. grand jésus. pp. i–xlii (faux titre, titre, dédicace, préface, introduction, index generalis Psittacorum, table, liste des auteurs); Planches coloriées 111, avec le texte non paginé. Pub. par. livr. (29.)

Engelmann cites the work by a somewhat different title, beginning "Collection des Perroquets", etc., and gives 1835–39 as dates of the appearance of 29 livraisons. Above title is from a bound copy in Libr. Phila. Acad.; the wrappers of the parts not being preserved, I cannot give their respective dates.

As expressly stated in the title, this Iconography is designed as a third (supplementary) volume to Levaillant's *Histoire Nat. de Perroquets*, 2 vols, 1801–5. A fourth companion volume was added to the series of illustrations in 1857–58, by De Souancé.

The plates of the present series are as follows:—Pl. 1, *Psittacus bengalensis*; 2, *P. torquatus*; 3, 3 bis, *P. colomboides*; 4, *P. barrabandi*; 5, *P. melanurus*; 6, *P. rosaceus*; 7, *P. anthopeplus*; 8, *P. undulatus*; 9, *P. rufifrons*; 10, *P. chrysostomus*; 11, *P. auricomus*; 11 bis, *P. novæ hollandiæ*; 12, *P. cornutus*; 13, *P. illigerii*; 14, *P. glauca*; 15, *P. glauca minor*; 16, *P. cobaltina* (nob.); 17, *P. cæruleo-frontata*; 18, *P. gouarouba*; 19, *P. patagonica*; 20, *P. nanday*; 21, *P. lepthorhinca* (sic); 22, *P. nobilis*; 23, *P. xanthoptera*; 24, *P. nana*; 25, *P. tiriba*; 26, *P. variegata melanura*; 27, *P. perlata*; 28, *P. ninus*; 29, *P. flaviventris*; 30, *P. icterotis*; 31, *P. palliceps*; 32, *P. barnardi*; 33, *P. brownii*; 34, *P. viridis unicolor*; 35, 35 bis, *P. erythropterus*; 36, *P. pacificus*; 37, *P. novæ zealandiæ*; 38, *P. tabuencis*; 39, *P. purpureocephalus*; 40, *P. coeruleo-barbatus* (nob.); 41, *P. dorso-cærulens* (nob.); 42, 42 bis, *P. aurcapillus*; 43, *P. euteles*; 44, 44 bis, *P. iris*; 45, *P. aurifrons*; 46, *P. placens* (nob.); 47, *P. xanthopterigius* (sic); 48. *P. toui gutture luteo*; 49, *P. gregarius*; 50, *P. passerinus*; 51, *P. scintillatus*; 52, *P. versicolor*; 53. 53 bis. *P. spatuliger*; 54, *P. flavirostris*; 55, 55 bis, 56, *P. mitratus*; 57, *P. cyanogaster*; 58, *P. leucogaster*; 59, *P. vulturinus*; 60, *P. senilis*; 61, *P. meyeri*; 62, *P. accipitrinus*; 63, *P. augustus*; 64, *P. guildingii*; 65, *P. colombinus*, 66, *P. pretrei*; 67, *P. pecqueti*; 68, *P. novae zealandiæ*; 69, *P. productus*; 70, *P. funereus*; 71, 71 bis, 1837–38. Bourjot St.-Hilaire, A.—Continued.

P. banksianus; 72, 72 bis, *P. temminckii*; 73, *P. baudinii*; 74, *P. rosea*; 75, 75 bis, 75 ter, *P. rubrogaleata*; 76, *P. tenuirostris*; 77, *P. leadbeateri*; 78, *P. rubrocristata* (nob.); 79, *P. sulfureus major*; 80, *P. sulfureus minor*; 81, *P minor philippinarum*; 82, *P. albo-cristata*; 83, *P. interfringillacea*; 84, *P. Florentis* (nob.) *Desmarestii*; 86, *P. griseifrons* (nob.); 87, *P. rubrifrons*; 88, *P. cyano-pileata*; 89, *P. Philippensis vel coula cissi*; 90, *P. rubricollis vel pullaria guienensis*; 91, *P. roseicollis*; 92, *P. malaccensis*; 93, *P. huetii*; 94, *P. loxia*; 95, *P. melanonota*; 96, *P. cana*; 97, *P. torquato-squamata*; 98, *P. swinderiana*; 90, *P. tarantae*; 100, *P. pygmœus*.

There are some interpolations in this series; but not all those presented as such in the table are actually present. I make out 111 plates by actual count. They were executed by Werner.

The nomenclature is very lax, scarcely satisfying the requirements of a system. The names in the text do not always correspond with those in the table, from which I have taken the above list; and the author's way of using names is difficult to make out, or see the point of. Only French names are engraven on the plates. This laxity or carelessness is a serious blemish upon an otherwise very praiseworthy and valuable monograph. There is about a leaf of text, descriptive, etc., to each plate.

"Many of the plates are original, others are copied from Spix, Temminck, or Lear; they are executed on stone, and though inferior to the works of Gould and Lear, they are perhaps the best ornithological lithographs which have issued from the French press. The text of this work is prepared with considerable care, but the nomenclature wants precision, the latin names being often wrongly spelled, and the principles of binomial nomenclature often departed from. Thus the genus *Palæornis* is in one instance designated *Psittacus*, in another *Psittacus sagittifer*, and in a third *Conurus sagittifer*, with the addition in each case of a specific name." (*Strickl. Rep. Brit. Assoc. for* 1844, 1845, p. 198.)

1838. Anon. Disquisitiones anatomicæ Psittacorum, diss. inaug. auct. M. J. Thuet. Turici, apud Orell. 1838. 4. 36. T. 2. < *Oken's Isis*, Bd. xxxi, 1838, p. 231.

1838. Thuet, M. J. Disquisitiones anatomicæ Psittacorum. Dissertatio inauguralis. Turici. Orellii, Fuesslini et Soc. 1838. 4to. pp. 36. pll. 2.

Not seen.

1838. Vigors, N. A. [Psittacus augustus, Ps. guildingii.] < *Oken's Isis*, Bd. xxxi, 1838, p. 195.

Aus *P. Z. S.*, iv, 1836.

1839. Rousseau, L. F. E. Note sur un nouvel os découvert dans la tête des Perroquets. < *Revue Zoologique*, ii, 1839, pp. 352, 353, pl. 2, figg. 3, 4, 5.

Désigné sous le nom de l'os Inter-carré-tympano-auditif.

1840. Jacquemin, [E.] [Sur un os observé par M. E. Rousseau dans la mâchoire des Perroquets et décrit comme nouveau par cet anatomiste.] < *Compt. Rend. de l'Acad. Sci.*, x, 1840, pp. 139, 140.

L'auteur sonpçonne que cet os n'est autre chose qu'une pièce qu'il a lui-même indiqué dans son Mémoire sur la Corneille.

1840. Rousseau, [L. F. E.] Sur un os nouvellement découvert dans la mâchoire des perroquets. < *Compt. Rend. de l'Acad. Sci.*, x, 1840, pp. 251, 252.

Voir *C. R.*, *tom. cit.*, p. 139.

N'est point, comme l'a supposé M. Jacquemin, une piece dépendante du système des canaux aériens du squelette, mais une piece propre aux oiseaux du genre *Psittacus*.

1840. Rousseau, [L. F.] E. [Observations au sujet de l'os que l'on trouve à la tête des Perroquets.] < *Revue Zoologique*, iii, 1840, pp. 57–59.

Voir *op. cit.*, ii, 1839, p. 352.

1842–55. Brehm, C. L. Monographie | der | Papageien | oder | vollständige Naturgeschichte aller bis jetzt | bekannten Papageien mit getreuen und | ausgemalten Abbildungen, | im Vereine mit andern Naturforschern | herausgegeben | von | C. L. Brehm | Pfarrer zu Renthendorf, der Kaiserl. Leopoldinischen Akademie Naturforscher und mehrerer gelehrten und | naturwissenschaftlichen Gesellschaften mit- oder Ehrenmitgliede. | — | Jena | August Schmid, | Paris | Treuttel et Würtz, Rue de Lille No. 17. | 1842 [–1855]. folio. pub. in Parts. 1 Heft, 1842; 2 Heft, 1843; 3 Heft, 1845; 4 Heft, 1853; 5 Heft, 1852; 6 Heft,

1842–55. Brehm, C. L.—Continued.
1853; 7 Heft, 1853; 8 Heft, 1853; 9 Heft, 1853; 10 Heft, 1854; 11 Heft, 1854; 12 Heft, 1854; 13 Heft, 1855; 14 Heft, 1855.

The copy examined of this work consists of 2 prel. pages (title and dedication), pp. 1–60 of text, and 70 colored plates. It appears to be incomplete, the text breaking off abruptly in the middle of a sentence on page 60, at species 34, already calling for plate 72; it has covers of the 14 Hefte above indicated bound in at the end. The dates on these covers are mostly in manuscript, presumably of some one who knows, but I cannot vouch for their accuracy; in fact, there seems to be some oversight, as the dates do not all follow consecutively the successive issues of the Parts. The text consists of a general account of each species, chiefly synonymatic, descriptive, and critical. The plates are as follows:—

Pl. 1, *Psittacus macao;* 2, *P. aracanga;* 3, *P. tricolor;* 4, *P. hyacynthinus;* 5, *P. militaris.* 6, *Arara hyacinthiacus;* 7, *A. ararauna;* 8, *A. buffonii* (Brehm, page 6); 9, *A. purpureo-dorsalis;* 10, *A. macawuanna;* 11, *A. severus;* 12, *A. macrognathos;* 13 missing (=*Anadorhynchos maximiliani,* see *Arara hyacinthinus*); 14, *Aratinga carolinae-augustae;* 15, *Arat. haemorrhous;* 15 bis, *Arathinga chrysocephalus;* 16, *Aratinga aurifrons;* 17, *A. luteus* sive *garauba;* 18, f. 1, *A. caixana,* f. 2, *A. ninus;* 19, *A. cyanogularis;* 20, *A. aureus;* 21, *A. xanthopterus;* 22, *A. acutirostris;* 23, *A. flaviventer;* 24, *A. latus;* 25, *A. fasciatus;* 26, *A. melanunus* (sic); 27, *A.* "*guianensis*" (so lettered, being *A. nobilis* of the text, p. 21); 28, *A. guianensis;* 29, 30, *A. pertinax;* 31, *A. virescens;* 32, *Psittaculus passerinus;* 33 (numbered 34 by mistake, see text, p. 26), *Ps. xanthopterygius;* 34, *P. gregarius;* 35, *P. tui;* 36, *P. swinderianus;* 37, *Psittacus xantops* (sic); 38, *P. columbinus;* 39, *P. malachitaceus;* 40, *P. pumilio;* 41, 42, *P. pileatus,* ♂, ♀ (42 being *P. diadema* of text, p. 33); 43, *P. diadema* (43 being *senilis* of text, p. 34); 44, *P. senilis* (44 being *pulverulentus* of text, p. 34); 45, *P. pulverulentus;* 46, *P. senilis;* 47, *P. accipitrinus;* 48, *P. menstruus;* 49, *P. cestivus* (for *æstivus*); 50, *P. amazonicus;* 51, *P. amazoninus;* 52, *P. melanocephalus;* 53, *P. barabandi;* 54, *P. bouqueti;* 55, *P. cyanotis;* 56, *P. aureus,* Bechst., nec L.; 57, *P. autumnalis;* 58, *P. paradisi;* 59, *P. cervicalis;* 60, *P. mascarinus;* *61, *P. menstruus,* ♀; *62, *P. senegalus;* *63, *P. gramineus;* *64, *P. melanocephalus;* *65, *P. geoffrayi* (sic); 66, *P. crythacus* (for *erythacus*); 67, *P. domicella;* 68, *P. cyanurus;* 69, *P. guebiensis;* 70, *P. ochruptenus* (sic). Those asterisked uncolored in copy examined. Text of p. 60 calls for—Pl. 71, *P. garrulus;* Pl. 72, *P. unicolor;* these not found.

Since the above was written I have fortunately found a copy in the original cover-titles, giving further particulars, as follows:—

Heft I, 1842, title, pp. 1–4, pll. 1–5; II, 1843, pp. 5–8, pll. 6–10; III, 1845, pp. 9–12, pll. 11–15; IV, 1853, pp. 13–16, pll. 16–20; V, 1852, pp. 17–20, pll. 21–25; VI, 1853, pp. 21–24, pll. 26–30; VII, 1853, pp. 25–28, pll. 31–35; VIII, 1853, pp. 29–32, pll. 36–40; IX, 1853, pp. 33–36, pll. 41–45; X, 1854, pp. 37–40, pll. 46–50; XI, 1854, pp. 41–44, pll. 51–55; XII, 1854, pp. 45–48, pll. 56–60; XIII, 1855, pp. 49–52, pll. 61–65; XIV, 1855, pp. 53–56, pll. 66–70.

Comparison of these two copies shows that there are in this work 14 perfect Parts, of pp. 56 and pll. 70; and also a 15th incompleted Part, raising the text to pp. 60, but apparently lacking pll. 71 and 72, called for by the text.—I handled the bound copy in the Congressional Libr., the other in the Libr. of the Phila. Acad.

1842. Kuhlmann, H. De absentia furculae in Psittaco pullario et de regione animalium vertebratorum humerali praecipue avium. Dissertatio inauguralis medica. Auctore Henrico Kuhlmann. Kiliæ. 1842.

Haud mihi obvia.

1845. Des Murs, O. Notes sur une espèce de Perruche nouvelle. < *Revue Zoologique,* viii, 1845, p. 449.

1846. Anon. The | Parrot-Keeper's | Guide. | — | Comprising, | the Natural History of | Macaws, Cockatoos, Parrots, Lories, | Parokeets, and Love-Birds; | with | general observations on the best modes of treatment, | the diseases to which they are subject, and | methods of cure, &c. | — | By an experienced dealer. | [Figure.] | London: | Thomas Dean & Co. Threadneedle-Street. 1 vol. 16mo. [n. d. 1846.] pp. 48, 6 col'd pll., and other illustrations.

1847. Lafresnaye, F. de. Quelques oiseaux nouveaux de Bolivie et de Nouvelle-Grenade. < *Revue Zoologique,* x, 1847, pp. 65–76.

Les trois oiseaux ici décrits sont de la famille des *Psittacidés—Ara rubro-genys,* p. 65; *A. castaneifrons,* p. 66; *Pionus melanotis,* p. 67.

1849. [Jardine, W.] Pionus gulielmi, Jardine [n. sp.]. < *Jard. Contrib. Orn.,* 1849, pp. 64, 65, pl. xxviii.

1849. Verreaux, J., *and* Des Murs, O. Description d'une nouvelle espèce de Perroquet [Pionus fuscicapillus]. < *Rev. et Mag. de Zool.*, i, 1849, p. 58.

1850. Bonaparte, C. L. Nouvelles espèces ornithologiques < *Compt. Rend. de l'Acad. Sci.*, xxx, 1850, pp. 131–139, 291–295.

Première Partie, Perroquets (y comprise *Lophornis* (i. e., *Diphyllodes*) *respublica*, sp. n., p. 131, note; voir note, p. 291.—*Paradiseidæ*). *Conurus xanthogenius*, p. 132; *Barrabandius*, p. 133; *Trichoglossus forsteni*, p. 134; *Chalcopsitta* (g. n., 1849) *rubiginosa*, p. 134; *Eos cyanogenia*, *E. semilarvata*, *Eclectus cornelia*, p. 135; *Psittacodis intermedius*, *Tanygnathus mulleri*, p. 136; *Poiocephalus magnirostris*, *Geoffroyus cyanicollis*, *G. personatus*, p. 137; *Plyctolophus parvulus*, p. 139, sont des espèces nouv. ou récemment décrites.—Seconde Partie, *Accipitres* (*Cathartidæ*, *Vulturidae*, *Gypaetidæ*, *Gypohieracidæ*, *Gypogeranidæ*), point d'espèces nouvelles.

1850. Bonaparte, C. L. Nouvelles espèces ornithologiques. < *Rev. et Mag. de Zool.*, ii, 1850, pp. 124–127.

Extraites des *Compt. Rend. de Acad. des Sci. de Paris*, séance du 11 février, 1850.—Aperçu général de l'ordre des Psittacidés; sept sous-familles.

1854. Bonaparte, C. L. Tableau des Perroquets. < *Rev. et Mag. de Zool.*, vi, 1854, pp. 145–158.

§1. Critique sur les espèces décrites par MM. Masséna et De Souancé, *R. M. Z.*, 1854, pp. 71–74; *Graydidascalus*, gen. n., p. 147. §2. Monographie du genre *Pionus*, pp. 148, 149; *P. corallinus*, p. 149. §3. Conspectus Psittacorum, pp. 149–158; *Cyanopsitta*, *Araruna*, *Aracanga*, *Rhyncopsitta*, p. 149; *Cyanoliseus*, *Nandayus*, *Heliopsitta*, *Eupsittula*, *Microsittace*, *Miropsitta*, p. 150; *Tirica*, *Psittovius*, *Evopsitta*, *Œnochrus*, p. 151; *Pionopsitta*, *Belurus*, p. 152; *Prosopeia*, *Purpureicephalus*, *Barnardius*, *Barrabandius*, *Cyanoramphus*, p. 153; *Poliopsitta*, p. 154; *Urodiscus*, *Stavorinus*, *Eolophus*, p. 155; *Chalcopsitta*, p. 156; *Psitteuteles*, *Glossopsitta*, p. 157, "Bp."—4 familles, 15 sous-familles, 78 genres, 316 espèces; les genres et les espèces introduits pour la première fois (mais sans descriptions) se trouvent précédés d'un astérisque. *Trichoglossus massena*, *T. verreauxius*, p. 157, spp. nn., avec descr.

This paper is conceived in the same fatuous spirit, and executed with the same disreputable result, as that on the *Trochilidæ*, which I have criticised adversely in this Bibliography.

1854. Masséna, —, *and* Souancé, [C.] de. Description de quelques nouvelles espèces d'oiseaux de la famille des Psittacidés. < *Rev. et Mag. de Zool.*, vi, 1854, pp. 71–74.

Ara auritorques, *Conurus icterotis*, *C. rubrolarvatus*, p. 71; *C. chrysogenys*, *C. callipterus*, p. 72; *C. devillei*, *C. molinæ*, *Psittacus selinoides*, p. 73; *Ps. cobaltinus*, p. 74. Cf. *op. cit.*, 1854, pp. 146–148.

1855. Cassin, J. Description of new species of Psittacidæ, in the collection of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Philada.*, iii, pt. ii, Dec., 1855 (extra copies printed Nov., 1855), art. xii, pp. 153–156, pll. xii, xiii, xiv.

Ara auricollis, pl. xii (descr. orig. *Proc. Acad.*, 1853, p. 372). *Chrysotis viridigenalis*, pl. xiii (descr. orig. *Proc. Acad.*, 1853, p. 371). *Psittacula lineola*, pl. xiv, f. 1 (descr. orig. *Proc. Acad.*, 1853, p. 372). *Brotogeris aurifrons*, n. sp., p. 155, pl. xiv, f. 2. *Prioniturus flavicans* (descr. orig. *Proc. Acad.*, 1853, p. 373) fig. nulla. *Palaeornis gironieri* Verr. (= *P. viridicollis*, descr. orig. *Proc. Acad.*, 1853, p. 373), fig. nulla.

1856. Blanchard, É. Des caractères ostéologiques chez les Oiseaux de la famille des Psittacides. < *Compt. Rend. de l'Acad. Sci.*, xliii, 1856, pp. 1097–1100.

Extrait par l'auteur.

1856. Souancé, C. de. Catalogue des perroquets de la collection du prince Masséna d'Essling, duc de Rivoli, et observations sur quelques espèces nouvelles ou peu connues de Psittacidés. < *Rev. et Mag. de Zool.*, viii, 1856, pp. 56–64, 152–158, 208–226.

"Ne voulant, dans cet opuscule, considérer cet ordre d'Oiseaux que sous le point de vue spécifique, nous laisserons de côté toute idée de la classification générale, nous bornant à suivre celle adoptée par S. A. le prince Ch. Bonaparte dans son Conspectus Psittacorum." (*Rev. et Mag. de Zool.*, 1854, pp. 145–158.)—*Psittacara hahni*, p. 58; *P. chloroptera*, *P. maugei*, p. 59; *Chrysotis chloronota*, p. 153; *C. coccineifrons*, p. 154; *Poeocephalus aubryanus*, p. 216; *Loriculus regulus*, p. 222; *L. bonapartei*, p. 222; *Nestor esslingii*, p. 223.—218 spp.

1856. Souancé, C. de. [Description d'une nouvelle espèce de Perroquet, Myiopsitta tigrina.] < *Rev. et Mag. de Zool.*, viii, 1856, p. 144.

1857. BLANCHARD, É. Nouvelles observations sur les caractères ostéologiques chez les oiseaux de la famille des Psittacides. < *Compt. Rend. de l'Acad. Sci.*, xliv, 1857, pp. 518–521.

1857. BLANCHARD, É. Nouvelles observations sur les caractéres ostéologiques chez les Oiseaux de la famille des Psittacides. < *Rev. et Mag. de Zool.*, ix, 1857, pp. 112, 113.

Résumé d'un travail lu à l'Acad. de Paris, séance du 9 mars 1857.

1857. BONAPARTE, C. L. Remarques du Prince Bonaparte à propos des observations de M. Emile Blanchard sur les caractères ostéologiques chez les Oiseaux de la famille des Psittacides. < *Compt. Rend. de l'Acad. Sci.*, xliv, 1857, pp. 534–539.

Myiopsitta catherina, p. 538.

1857. BONAPARTE, C. L. Remarques à propos des observations de M. E. Blanchard Sur les caractères ostéologiques chez les Oiseaux de la famille des Psittacides. < *Rev. et Mag. de Zool.*, ix, 1857, pp. 113–117.

1857. BONAPARTE, C. L. Tableau des genres de Perroquets disposés en series parallèles. < *Comp. Rend. de l'Acad. Sci.*, xliv, 1857, pp. 595–597.

1857. MAXIMILIAN, PRINZ VON WIED. Ueber den Papagei von Nord-America. Psittacus (Conurus) carolinensis, Lin. < *J. f. O.*, v, 1857, pp. 97–105.

Elaborate description and account of geographical distribution and habits.

1857. SCLATER, P. L. Notes on an unnamed Parrot [Chrysotis sallæi] from the Island of St. Domingo, now living in the Society's Gardens; and on some other Species of the same Family. < *P. Z. S.*, xxv, 1857, pp. 224–226, pl. (Aves) cxxvii.

1857. SOUANCÉ, C. DE. Descriptions de trois nouvelles espèces de Perroquets. < *Rev. et Mag. de Zool.*, ix, 1857, pp. 97, 98.

Conurus astec [sic], *Pyrrhura hoematotis* [sic], p. 97; *Cyanoramphus malherbi*, p. 98.

1857–58. SOUANCÉ, C. DE. Iconographie | des | Perroquets | non figurés dans les publications de Levaillant et de M. Bourjot Saint-Hilaire | par | M. Charles de Souancé | avec la coopération de | S. A. le prince Bonaparte, et de M. Émile Blanchard | — | Histoire Naturelle des Perroquets. | — | Paris | P. Bertrand | Libraire-Éditeur | Rue de l'Arbre-sec, 22 | — | 1857 [1858]. 1 vol. in fol. grand jésus. Faux titre, 1 feuillet; titre, 1 feuillet; introduction, 1 feuillet (2 pages); le Texte non paginé, 48 feuillets; et 48 Planches coloriées. (Publiée par livr. i–xii, 1857, 1858.)

Levaillant a publié les figures et descriptions de 90 espèces de Perroquets, dans son *Hist. Nat. des Perroq.*, en deux vols. in-fol. 1801–1805. En 1837–38, M. Bourjot St.-Hilaire a représenté 88 autres espèces, dans son ouvrage, rédigé sur le même plan, *Hist. Nat. des Perroq.*, qui forme la suite ou le troisième vol. (supplémentaire) de l'Iconographie de Levaillant. Cette Iconographie de M. de Souancé forme le quatrième volume de *l'Hist. Nat. des Perroq.* de Levaillant et M. Bourjot St.-Hilaire. Elle contient les figures des espèces qui ne se trouvent pas dans les trois volumes publiés par les deux auteurs, accompagnées d'une courte description, et des détails anatomiques. L'auteur a trouvé les matériaux de son ouvrage d'abord dans la riche collection de son oncle, le prince d'Essling, dans celle du Jardin des Plantes à Paris, et dans les divers musées de France et de l'étranger.

Voici la liste des planches: Pl. I, f. 1, *Anodorhynchus leari*; f. 2, *A. glaucus*. II. *Sittace primoli*. III, *S. rubrigenis*. IV, *Evopsitta acuticauda*. V, *Rhynchopsitta pachyrhyncha*. VI. *Psittacara hahni*. VII, *Evopsitta euops*. VIII, *E. maugei*. IX, *Conurus petzii*. X, *C. cactorum*. XI, *C. chrysophrys*. XII, *C. aztec*, *C. nanus*. XIII, *C. weddellii*. XIV, *Pyrrhura luciani*. XV, *P. molinæ*. XVI, *P. devillei*. XVII, *P. calliptera*. XVIII, *P. haematotis*. XIX, *Psittacara icterotis*. XX, *Evopsitta wagleri*. XXI, *Evopsitta mitrata*. XXII, *E. erythrogenys*. XXIII, *Bolborhynchus aymara*. XXIV, f. 1, *B. orbignesia*; f. 2, *B. aurifrons*. XXV, *Pyrilia amazonina*. XXVI, *P. typica*. XXVII, *Chrysotis auripalliata*. XXVIII, *C. poecilorhyncha*. XXIX, *C. chloronota*. XXX. *C. albifrons*. XXXI, *C. viridigenalis*. XXXII, *C. diadema*. XXXIII, *C. hypochondrica*. XXXIV, f. 1, *Pionus siy*; f. 2, *P. maximiliani*. XXXV, *P. chalcopterus*. XXXVI, *P. seniloides*. XXXVII, *Urochroma purpurata*. XXXVIII, *U. surda*. XXXIX, *Psittacula guianensis*. XL, *P. cœlestis*. XLI, *P. conspicillata*. XLII. *P. cyanopygia*. XLIII, *Palæornis schisticeps*. XLIV, *P. calthropæ*

1857–58. SOUANCÉ, C. DE.—Continued.

XLV, *Tanygnatus mulleri.* XLVI, *T. sumatranus.* XLVII, *Barnardius zonarius.* XLVIII, (énumérée à tort LXXIX) *Cyanoramphus malherbi.*

(NOTE.—Carus announces the work as of two parts: 1) *His'. Nat.*, 1 vol., 8vo, to be pub. in 1859, and 2) *Iconogr.*, 1 vol., fol. or 4to, with about 120 pll., in 30 monthly parts; but all I know of the work is as above.)

1858. SCLATER, P. L. Notes on an unnamed Parrot [Chrysotis sallæi] from the Island of St. Domingo; and on some other Species of the same Family. < *Ann. Mag. Nat. Hist.*, 3d ser., i, 1858, pp. 223–226.

From *P. Z. S.*, Nov. 10, 1857, pp. 224–226.

1858. SCLATER, P. L. Verzeichniss der in den Gärten der zoologischen Gesellschaft zu London lebenden Papageien. < *Naumannia*, viii, 1858, pp. 201–204.

77 spp.

1859. SCLATER, P. L. Descriptions of two new Species of American Parrots. < *Ann. Mag. Nat. Hist.*, 3d ser., iv, 1859, pp. 224–226.

Conurus holochlorus, p. 224; *C. xantholæmus*, p. 225. List of 9 Mexican spp. of the family.

1859. GRAY, G. R. List | of the | Specimens of Birds | in | the collection | of the | British Museum. | By G. R. Gray, F. L. S., F. Z. S., etc. | Part III. Section II. Psittacidæ. | Printed by order of the Trustees. | London: 1859. 1 vol. sm. 12mo. 2 p. ll., pp. 1–110, 1–8 (advts.).

This List catalogues the specimens of Parrots in the British Museum, exemplifying by letters *a*, *b*, *c*, &c., the locality and source whence each has been derived. The scientific value of the treatise rests in the extensive synonymy of the genera and species which is given. Cf. *Ibis*, 1859, pp. 320, 321.

1859. WALLACE, A. R. Correction of an Important Error affecting the Classification of the Psittacidæ. < *Ann. Mag. Nat. Hist.*, 3d ser., iii, 1859, pp. 147, 148.

Domicella is brush-tongued, like *Trichoglossus* and *Eos.*

1860. BLANCHARD, É. Observations sur le système dentaire chez les Oiseaux. < *Compt. Rend. de l'Acad. Sci.*, l, 1860, pp. 540–542.

Recherches sur divers *Psittacides.*

1862. FÖRSTER, A. [Scrophulöse Drüse eines Papageies (Psittacus amazonicus).] < *Zool. Gart.*. iii, 1862, p. 66.

1862. NEUBERT, W. Ueber Züchtung von Papageien in Deutschland. < *Zool. Gart.*, iii, 1862, pp. 57–61, 76–78.

1863. FINSCH, O. Naamlijst der in de Diergaarde levende Papagaaijen. < *Nederl. Tijdschr. voor de Dierk.*, 1863, pp. vi–xxiv.

Not seen.

1863. WEINLAND, D. F. Unsere Arara's. < *Zool. Gart.*, iv, 1863, pp. 244, 247, figg. 1–5.

1864. AUCAPITAINE, H. Longévité des Perroquets. < *Rev. et Mag. de Zool.*, xvi, 1864, pp. 409–411.

1864. CABANIS, J. Eine neue Papageien-Art von Bogota, Conurus (Gnathosittaca) Heinei. < *J. f. O.*, xii, 1864, pp. 414–416.

1864. SACC, *Dr.* [Begattung von Platycercus eximius. Neuer Amazon-Papagei. Perroquet tapiré.] < *Zool. Gart.*, v, 1864, p. 21.

1864. SCHLEGEL, H. Psittaci. < *Mus. Hist. Nat. Pays-Bas*, 5^e livr., 1864, pp. 1–166.

The Parrots, represented in the Leyden Museum by 1,204 specimens, referred by the author to 259 spp., none of which are described as new, are here treated under 19 genera, among them *Amazona*, Less.

There is a second article of similar character, 1874, *q. v.*

1864. SCHMIDT, MAX. Das Federnagen der Papageien. < *Zool. Gart.*, v, 1864, pp. 177–181.

1864. SCLATER, P. L. Characters of Three New American Parrots. < *P. Z. S.*, xxiv, 1864, pp. 297, 298, pl. xxiv.

Conurus rhodogaster, Natt. mss., p. 298, pl. xxiv; *Brotogerys chrysosema*, Natt. mss. p. 298; *Chrysotis finschi*, p. 298.

1865. [Anon.] Langes Leben der Papageien. < *Aus der Natur*, xxxi, oder n. F., xix, 1865, pp. 175, 176.

1865. Schmidt, Max. Die Nachtheile eiserner Sitzstangen für Papageien. < *J. f. O.*, xiii, 1865, p. 354.

1865. Sclater, P. L. [Remarks on a rare Parrot (Chrysotis augusta) from Dominica.] < *P. Z. S.*, xxxiii, 1865, pp. 437, 438.

1866. Finsch, O. Die geographische Verbreitung der Papageien. < *Peterm. Geogr. Mittheil.*, 1867 (pub. 1866), pp. 3–7 (mit einer Karte von A. Petermann).

Nicht mir selbst zugänglich.

1866. Guyon, —. Des animaux disparus de la Martinique et de la Guadeloupe depuis notre établissement dans ces îles. < *Compt. Rend. de l'Acad. Sci.*, lxiii, 1866, pp. 589–597.

Des Aras, des Perroquets et des Perruches.

1866. [Guyon, —.] Ueber die Thiere, die auf den Inseln Martinique und Guadeloupe seit der Besitznahme durch die Franzosen verschwunden sind. < *Aus der Natur*, xxxviii, oder n. F., xxvi, 1866, pp. 730, 733.

Auszug aus den *Compt. Rend.*, lxiii, 1866, pp. 589–597, *q. v.*

1867. [Finsch, O.] Geographische Verbreitung der Papageien. < *Aus der Natur*, xxxix, oder n. F., xxvii, 1867, pp. 107–111.

1867–68. Finsch, O. Die Papageien, | monographisch bearbeitet | von | Otto Finsch, | Conservator der zoologischen Sammlung der Gesellschaft „Museum" zu Bremen, früher | Assistent am Reichs-Museum zu Leiden, correspondirendes Mitglied der | Zoological Society zu London und anderer gelehrter Gesellschaften. | — | Erster Band. | Mit einer Karte und einer lithographirten Tafel. | — | Leiden, E. J. Brill. | 1867. | . . . . | Zweiter Band. | Erste [zweite] Haelfte. | Mit 5 nach der Natur lithographirten und colorirten Tafeln und | Uebersichts-Tabellen zur Geographischen Verbreitung. | Leiden, E. J. Brill. | 1868. 2 vols. 8vo. Vol. I, 1867, pp. xii, 361 + 1, 1 map, 1 pl. Vol. II, 1868, pp. vii + 22, 996 + 3, 5 pll. col'd, 1 table; this vol. published in 2 parts, continuously paged, same date.

Vol. I. Vorwort; Erklärungen; Allgem. Naturg. d. Papag. (Geschichtliches u. literarischer Ueberblick—Aeusseres Leben—Verbreitung—Geistesanlagen—Gestalt und äussere Werkzeuge—Federn—Anatomie—Systematik); Specielle Naturg. d. Papag; Karte; Pl. I, Scelet von *Ps. erythacus* und Schadel von *Plect. sulfureus* u. *Euphema pulchella*. Vol. II. Vorwort; Uebers.-Tabellen zur geogr. Verbreit.; Specielle Naturg. fortzetzt.; Anhang (Dubiöse Arten, etc.); Pl. II, *Brotogerys subcœrulea;* Pl. III, *B. chrysosema;* Pl. IV, *Chrysotis guatemalæ;* Pl. V, *Coryllis exilis;* Pl. VI, *Domicella fuscata.—Bolborhynchus luchsii*, ii, p. 121, sp. n.

Very complete. The first part general; historical and literary view of the subject; bibliographical abstract; biographical account; geographical distribution, illustrated by maps (pl. I); on the wit, external structure, pterylography and anatomy, and systematic arrangement; list of genera and species. In the second part each species is treated in great detail—1 "family"; 5 subfamilies; 26 genera, 350 + 4 spp., besides 41 doubtful ones.

Cf. *Zool. Rec.*, iv, 1867, pp. 83–85; v, 1868, pp. 69–70; *Zool. Gart.*, 1867, pp. 318–320; *Ibis*, 2d ser., v, 1869, pp. 223–225.

1867. Niemeier, W. Zur Verfärbung von Conurus carolinensis. < *Zool. Gart.*, viii, 1867, p. 268.

1867. Noll, F. C. Die Papageien, monographisch bearbeitet von Otto Finsch. Leiden, E. J. Brill 1867, ———?

Review.—My copy of this title, I suspect, is defective: it looks to me like a title from *Zool. Gart.*, with the reference omitted through oversight; but I cannot verify.

1867. Schlegel, F. Uebersicht der Papageien unserer zoologischen Gärten. < *Zool. Gart.*, viii, 1867, pp. 32–34, 72–75.

1867. Schlegel, F. Nachtrag zur Uebersicht der Papageien unserer zool. Gärten. < *Zool. Gart.*, viii, 1867, pp. 229–231.

Vergl. *tom. cit.*, pp. 32–34, 72–75. Diese zwei Artikel geben ein Namen-Verzeichniss von 130 in verschiedenen zool. Gärten in Europa lebenden Arten.

1867. Sclater, P. L. Notes upon some Parrots living in the [London Zoological] Society's Menagerie. < *P. Z. S.*, Feb. 14, 1867, pp. 183–185, pl. xvi.

Comparative diagnoses of *Ara ambigua* and *A. militaris*. Plate of *Lorius chlorocercus*. Critical remarks on various species of *Cacatua*.

1868. [Finsch, O.] Papegoiernes geografiske Udbredning. < *Tidssk. Pop. Frems. af Naturv.*, 3e række, v, 1868, pp. 340–345.

1868. [Finsch, O.] Uebersichts-Tabellen zur geographischen Verbreitung der Papageien. Abgeschlossen am 15. Juni 1868. [Von Dr. Otto Finsch. n. d. n. p. 1868.] 8vo. 11 unpaged leaves.

This brochure, without author's name, date, or place of publication, is apparently extracted from Finsch's celebrated monograph. It gives in tabular form the distribution of *Psittacidæ* under the six principal heads of America, Africa, Asia, East Indian regions, Australia, and Polynesia.

1869. Barboza du Bocage, J. V. Museu Nacional de Lisboa | — | Secção Zoologica | — | Catalogo das Collecções Ornithologicas | — | Psittaci—Papagaios. | Accipitres—Aves de Rapina. | — | Junho de 1869 | [Arms.] | Lisboa | Imprensa Nacional | 1869 8vo. pp. 62.

" . . . enceto agora a publicação dos catalogos das collecções zoologicas do museu du Lisboa. Os primeiros que se póde levar á conclusão comprehendem duas ordens de aves, os *Psittacideos* ou *papagaios* e as *Aves de rapina*. Estes catalogos foram redigidos pelo sr. José Augusto de Sousa, . . . Os *Psittacideos* [pp. 7–28] constam de 204 especies e as *Aves de rapina* de 223."

1871. Lawrence, G. N. [Notes on Central American Psittacidæ, with reference to O. Salvin's paper, tom. cit., p. 86 seq.] < *Ibis*, 3d ser., i, 1871, pp. 249–251.

1871. Reinhardt, J. [Note on the habitat of Ara macao, with reference to O. Salvin's paper, tom. cit., pp. 86–100.] < *Ibis*, 3d ser., i, 1871, p. 362.

1871. Rey, E. [Der Carolinenpapagei (Conurus carolinensis) in Gefangenschaft.] < *Zool. Gart.*, xii, 1871, pp. 280–283.

1871. Salvin, O. On the Psittacidæ of Central America. < *Ibis*, 3d ser., i, 1871, pp. 86–100, pl. iv.

Critical commentary, with special reference to geographical distribution, upon 27 spp. of 9 genn. *Conurus finschi*, p. 91, pl. iv, sp. n. (Cf. Lawrence, *tom. cit.*, pp. 249–251, and Reinhardt, *ibid.*, p. 362.)

1872. Dodge, N. S. A chapter on Parrots. < *Appleton's Journ.*, viii, Oct., 1872, p. 431.

1872. Dorner, H. Die Papageien-Ausstellung der zoologischen Gärten zu Hamburg. Hamburg. 1872. 1 vol. 8vo. pp. 48.

Short descriptions of 78 spp., living on exhibition—which, with the other matter of the book, are apparently from O. Finsch's monograph.

1872. Rey, E. [Ein- und Ausfliegen von Papageien, Conurus carolinensis.] < *Zool. Gart.*, xiii, 1872, pp. 123, 124.

1872. Schmidt, Max. Fortpflanzung des Mönchsittichs (Bolborhynchus monachus) in Gefangenschaft. < *Zool. Gart.*, xiii, 1872, pp. 257–264.

In the Zoological Garden at Frankfort.

1873. Finsch, O. On a new American Parrot, of the Genus Chrysotis [C. bodini]. < *P. Z. S.*, 1873, pp. 569, 570, pl. xlix.

1873. Stricker, W. Geschichtliche Mittheilungen über den Handel mit Papageien und die Zähmung derselben in Europa bis zum Ende des Mittelalters. < *Zool. Gart.*, xiv, 1873, pp. 266, 267.

1874. Cabanis, J. [Chrysotis canipalliata, sp. n.] < *J. f. O.*, xxii, 1874, pp. 105, 106.

1874. Cabanis, J. [Chrysotis panamensis, sp. n.] < *J. f. O.*, xxii, 1874, p. 349.

1874. Finsch, O. On an apparently new Species of Parrot [Psittacula andicola] from Eastern Peru. < *P. Z. S.*, xlii, 1874, pp. 90, 91.

1874. Schlegel, H. Revue de la Collection des Perroquets (Psittaci) faisant partie du Musée des Pays-Bas. < *Mus. Hist. Nat. Pays-Bas*, 11^e livr., Mai, 1874, pp. 1–84.

In this review of the subject since 1864 (*q. v.*) are treated the specimens, now 2,237 in number, of the Leyden Collection. *Psittacula diophthalma aruensis*, p. 33.

1874. Sclater, P. L. [Report on recent additions to the Society's Menagerie.] < *P. Z. S.*, xlii, 1874, p. 206, pl. xxxiv.

Chrysotis finschi, pl. xxxiv.

1874. Walden, *Lord.* A Reply to Mr. Allan Hume's Review of 'Die Papageien' of Dr. Otto Finsch. < *Ibis*, 3d ser., iv, 1874, pp. 270–299.

A terribly incisive castigation, delivered with an unfaltering hand—with how much justice, readers of both articles may judge.

1875. Finsch, O. Ueber drei neue Vögelarten. < *J. f. O.*, 1875, pp. 411——.

The article includes the description of *Chrysotis nattereri*, p. —, from Brazil.

1875. Sclater, P. L. On some rare Parrots living in the Society's Gardens. < *P. Z. S.*, Feb. 2, 1875, pp. 59, 62, figg. 1, 2, pll. x, xi.

Treating of *Cacatua goffini*, pl. x, and fig. 1 in text, *C. sanguinea* (fig. 2) and *C. gymnopis*; also, *Chrysotis bouqueti*, pl. xi, from Santa Lucia, and various South American species. Whole series in the menagerie, 186 specimens of 115 spp.

1875. [Sclater, P. L.] [Addition of Chrysotis xantholora to the Society's Menagerie.] < *P. Z. S.*, Mar. 16, 1875, p. 157, pl. xxvi.

1875. [Sclater, P. L.] [On additions to the Society's Menagerie in March, 1875.] < *P. Z. S.*, Apr. 20, 1875, pp. 316, 317.

Various birds, among them *Chrysotis bouqueti* (see *P. Z. S.*, 1874, p. 323; 1875, p. 59, pl. xi), from Santa Lucia, W. I.

1875. Sclater, P. L. [Report on additions to the Society's Menagerie, with Remarks on Chrysotis xantholora.] < *P. Z. S.*, Mar. 16, 1875, pp. 156, 157, pl. xxvi.

The Parrot named is figured on the plate cited. There is no other bird matter.

1875. Seller, W. J. A Talking Parrot. < *Rod and Gun*, vii, Dec. 18, 1875, p. 179.

1875. Wickham, H. A. [Letter on the occurrence of Ara hyacinthina near Santarem, Brazil.] < *P. Z. S.*, Dec. 7, 1875, pp. 633, 634.

1876. Garrod, A. H. Notes on the Anatomy of certain Parrots. < *P. Z. S.*, June 20, 1876, pp. 691, 692.

Brief observations on numerous species, some of them neotropical.

1876. Gregory, J. A. A wonderful Parrot. < *Forest and Stream*, vii, Dec. 14, 1876, p. 292.

1876. Sclater, [P. L.] [Ara couloni, sp. n.] < *P. Z. S.*, Feb. 15, 1876, pp. 255, 256, fig.

Being *Conurus illigeri*, Tsch., *Fn. Peru, Aves*, p. 271, and in part *Sittace maracana*, Finsch, *Pap.*, i, p. 420.

1876. [Newcomb, R. L.] A musical Parrot. < *Forest and Stream*, vii, Dec. 7, 1876, p. 276.

1877. Coues, E. Western Range [to Kansas and Colorado] of Conurus carolinensis. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, p. 50.

1877. Garrod, A. H. Note on the Absence or Presence of a Gall-bladder in the family of the Parrots [Psittacidæ]. < *P. Z. S.*, Nov. 20, 1877, p. 793.

Present in *Cacatua* and its allies. Also, present in some *Columbidæ*. It had been denied to both these families.

1877. Sclater, P. L. On the American Parrots of the Genus Pionus. < *Rowl. Orn. Misc.*, iii, pt. xi, Nov., 1877, pp. 5–10, pll. lxxx, lxxxi.

P. corallinus, pl. 80; *P. tumultuosus*, pl. 81.

1878. Burmeister, H. Notes on Conurus hilaris and other Parrots of the Argentine Republic. < *P. Z. S.*, Jan. 15, 1878, pp. 75–77.

Extended account of a long-tailed Parrot (not named); correction of mistakes in Finsch's work respecting various Argentine and Brazilian species.

1878. [SCLATER, P. L.] [On Addition of Ara spixi? to the Society's Menagerie, in November, 1878.] <*P. Z. S.*, Dec. 3, 1878, p. 976, pl. lxi.

1879. ANON. New Facts about Parrots [Psittacidæ]. <*Forest and Stream*, Oct. 16, 1879, p. 737.

Reprinted from *Pittsburgh Leader*.

1879. SCLATER, P. L. Remarks on some Parrots living in the Society's Gardens. <*P. Z. S.*, Mar. 18, 1879, pp. 299–301, pl. xxviii.

The series consisted of 170 individuals of 98 spp., 6 of which are here remarked upon—2 spp. of *Brotogerys*, 3 of *Palæornis*, and *Caica xanthomera*, which latter is figured.

1879. SCLATER, [P. L.] [Remarks on exhibition of Ara glauca from Corrientes.] <*P. Z. S.*, June 17, 1879, p. 551.

Strigidæ.

1822. EDMONSTON, L. Observations on the Snowy Owl, (Strix Nyctea, Linn.) <*Mem. Wernerian Nat. Hist. Soc.*, iv, pt. i, 1822, pp. 157–160.

Read Mar., 1822. Relating to its distribution and habits.

1826. GARNOT, P. Observations sur le Chat-huant couleur de neige (Strix Nyctea) par Laurence Edmonston. . . . <*Féruss. Bull.*, 2e sec., vii, 1826, pp. 106, 107.

Mem. Wernerian Soc., iv, 1822, pp. 157–160.

1829. HEAD, T. The Biscacho, or Coquimbo Owl (Strix cunicularia). <*Loudon's Mag. Nat. Hist.*, i, 1829, p. 285, fig. 150.

From *Head's Rough Notes*, p. 82.

1830. GEOFFROY ST.-HILAIRE, ISID. Remarques sur les caractères et la classification des Oiseaux de proie nocturnes, et Description d'un genre nouveau sous le nom de Phodilus. <*Ann. des Sci. Nat.*, xxi, 1830, pp. 194–203.

Division de la famille en 2 sections—§ I. Les genres chez lesquels il n'existe point de disque autour de la face, 1° *Noctua*, 2° *Bubo*, 3° *Phodilus*, g. n., p. 199. § II. Ceux chez lesquels le disque est complet ou presque complet, 1° *Syrnium*, 2° *Ulula*, 3° *Strix*.—Chouette Calong, Pl. Col. 318, = *Strix badius*, Horsf. = *Phodilus badius*, p. 203.

1833. HOY, J. D. The Short-eared Owl (Strix brachyotus Lath.) breeds in the County of Norfolk. <*Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 150, 151.

1834. BREE, W. T. [On Shakespeare's Notice of the Owl's Manner of Flight.] <*Loudon's Mag. Nat. Hist.*, vii, 1834, p. 593.

1835. NEILL, P. The Snowy Owl (Stríx nýctea), an Individual of, has been taken alive at Orkney, and was alive on May 9, 1835, at Canonmills, near Edinburgh. <*Loudon's Mag. Nat. Hist.*, viii, 1835, p. 508.

1837. DENNY, H. [Letter on the occurrence of the Snowy Owl (Nyctea nivea) at Selby, Yorkshire.] <*P. Z. S.*, v, 1837, p. 45.

1838. CABOT, S. [JR.] Observations on the plumage of the Red and Mottled Owls (Strix asio). <*Journ. Bost. Soc. Nat. Hist.*, ii, pt. i, 1838, pp. 126–128.

Supposing the difference to be due to age—*S. naevia* juv., *S. asio* ad. The true interpretation of the phenomenon (dichromatism, independent of age, sex, or season) was not made until many years afterward.

1838. DENNY, H. Surnia Nyctea, Dumeril. <*Mag. of Zool. and Bot.*, ii, 1838, p. 93.

Its occurrence Feb. 13, 1838, in Britain.

1838. THOMPSON, W. On the Snowy Owl, Surnia nyctea, Dumeril. <*Annals of Nat. Hist.*, i, 1838, pp. 241–245.

Description, and habits in confinement.

1839. LESSON, R. P. Description d'une nouvelle espèce de Syrnium [S. ocellatum]. <*Revue Zoologique*, ii, 1839, pp. 289–290.

1839. MICHENER, E. A few Facts in relation to the Identity of the Red and Mottled Owls, &c. <*Journ. Acad. Nat. Sci. Phila.*, viii, 1839, pp. 53–56.

1839. THOMPSON, W. Note on the Migration of the Snowy Owl, Surnia nyctea, Dum. <*Annals of Nat. Hist.*, iii, 1839, pp. 107–110.

1842. ABBOTT, S. L. [On a specimen of Syrnium cinereum from Massachusetts.] <*Proc. Bost. Soc. Nat. Hist.*, i, 1842, pp. 57, 58.

1843. GERARD, —. Chouette. <*Dict. Nouv. d'Hist. Nat.*, iii, p. 631.

Not seen. The article Chouette in this dictionary is specially mentioned by Wagner, as "one of the best of the ornithological articles contained in the present part." The author regards the commonly received genera as subgenera, and does not enter upon species.

1843. VAN BENEDEN, P. J. Note sur l'oreille externe de quelques oiseaux de proie nocturnes. <*Mem. Soc. Roy. Sci. Liège*, i, 1843, pp. 121–124, pl. 3.

Pas vue moi-même.

1844. CASSIN, J. [On the frequent occurrence of Strix nyctea in the vicinity of Philadelphia during the winter of 1843–4.] < *Proc. Acad. Nat. Sci. Phila.*, ii, 1844, pp. 19, 20.

1844. FAYRER, —. [Letter from, accompanied by two specimens of Strix nyctea.] < *P. Z. S.*, xii, 1844, p. 19.

1844. PUCHERAN, *Dr.* Considérations générales sur les oiseaux de proie nocturnes et description de quelques espèces peu connues de cet ordre, de la collection du musée de Paris. < *Arch. du Mus. d'Hist. Nat.*, iv, 1844, pp. 311–343, pll. xxii–xxiv.

Scops rutilus, p. 326, pl. 22 (*Rev. Mag. Zool.*, 1849, p. 29); *Bubo madascariensis*, p. 328, pl. xxiii (*Otus madag.*, Smith, *S. Afr. Quart. Jour.*, ii, 1835, 316); *Bubo magellanicus*, auct., p. 331; *Otus stygius*, p. 336, pl. xxiv (*Nyctalops stygius*, Wagl., *Isis*, 1832, p. 1221); *Syrnium ocellatum*, p. 339 (Less., *R. Z.*, ii, 1839, p. 289).

1844. THOMPSON, W. Ueber Surnia nyctea, geschossen in September 1837. in einem Steinbruch in der Grafschaft Down. < *Oken's Isis*, Bd. xxxvii, 1844, pp. 582, 583.

From *Ann. Nat. Hist.*, 1838, p. 241.

1844. THOMPSON, W. Ueber die Wanderung der Schnee-Eule (Surnia nyctea). < *Oken's Isis*, Bd. xxxvii, 1844, pp. 748, 749.

Ann. Nat. Hist., iii, 1839, p. 107.

1845. LILLJEBORG, W. [Om Stryx nyctea.] < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1844, 1845, p. 212, 213.

1846. VAN BENEDEN, [P. J.] Ueber das åussere Ohr der Eulen. < *Oken's Isis*, Bd. xxxix, 1846, p. 157.

Mém. Soc. Roy. Sci. Liège, Tom. i, pt. i, 1843, pp. 121–124, pl. 3.

1847. CABOT, S., JR. [Occurrence of Syrnium cinereum in Vermont and Massachusetts.] < *Proc. Bost. Soc. Nat. Hist.*, ii, 1847, p. 206.

1848. CASSIN, J. Descriptions of Owls, presumed to be undescribed, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iv, 1848, pp. 121–125.

Ephialtes sagittatus, p. 121; *E. watsonii*, p. 123; *Syrnium albogularis*, *S. virgatum*, p. 124.

1848. CURTLER, M. Occurrence of the Short-eared Owl (Strix brachyotus) near Worcester. < *Zoologist*, vi, 1848, p. 2063.

1848. KAUP, J. J. Uebersicht der Eulen (Strigidae). < *Oken's Isis*, Bd. xli, 1848, pp. 753–774.

Sceloglaux, *Hieracoglaux*, *Spiloglaux*, *Microptynx*, p. 768; *Microglaux*, *Pholeoptynx*, *Taenioglaux*, *Pisorhina*, *Megascops*, *Acnemis*, *Ptilopsis*, *Pseudoscops*, p. 769; *Rhinostrix*, *Phasmaptynx*, *Pseudoptynx*, *Megastrix*, p. 770; *Pulsatrix*, p. 771.—Zusätze zu den *Falconidæ*, *Isis*, 1847, 616. (Vergl. 1851–52, u. 1859, KAUP, J. J.)

1849. CASSIN, J. Descriptions of Owls presumed to be undescribed. < *Ann. Mag. Nat. Hist.*, 2d ser., iv, 1849, pp. 225–229.

From *Proc. Acad. Phila.*, iv, 1848, pp. 121–125.

1849. PUCHERAN, *Dr.* Observations sur les types peu connues du Musée de Paris.—Rapaces nocturnes. < *Rev. et Mag. de Zool.*, i, 1849, pp. 17–28.

Types de MM. Vieillot et Lesson.

1850. CASSIN, J. Descriptions of Owls, presumed to be new species, in the collection of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, ii, pt. i, Nov., 1850, art. iv, pp. 51–54, pll. iii, iv, v.

Already described, *Proc. Acad.*, iv, Dec., 1848, p. 124; iv, Feb., 1849, p. 157. Pl. iii, *Syrnium virgatum*; pl. iv, *S. albogularis*; pl. v, *Nyctale harrisii*. See same author at 1852.

1850. ELLMAN, J. B. Note on the Long and Short-eared Owls (Strix otus and brachyotos). < *Zoologist*, viii, 1850, p. 2698.

1850. FOOTIT, W. F. Occurrence of the Snowy Owl (Strix nyctea) in the north of Scotland. < *Zoologist*, viii, 1850, p. 2923.

1850. Gurney, J. H. Occurrence of the Snowy Owl (Strix nyctea) in Norfolk. < *Zoologist*, viii, 1850, p. 2765.

1850. Gurney, J. H. Occurrence of the Snowy Owl [Nyctea nivea] in Norfolk. < *Zoologist*, viii, 1850, p. 2765.

1851. Cassin, J. [Note on the Plumages of Ephialtes asio (Gm.).] < *Proc. Acad. Nat. Sci. Phila.*, v, 1851, p. 236.

Specimens establishing the identity of *E. nævia* and *E. asio.*

1851–52. Kaup, J. J. Monograph of the Owls—Strigidæ, by T. T. [sic] Kaup. < *Jard. Contrib. Orn.*, 1851, pp. 119–130; 1852, pp. 103–122.

Of the same character as the author's Monog. *Falconidæ.* Many of the generic names are now or lately new, but are not so indicated. See the original, *Isis*, 1848, pp. 753–774. There is a later memoir by the same on the same, 1859, *q. v.*

1852. Cassin, J. Description of Owls presumed to be new species, specimens of which are in the collection of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, ii, pt. ii, Jan., 1852, art. xii, pp. 95–97, pl. xii.

Orig. descr. *Proc. Acad.*, iv, 1848, pp. 121, 123.—Pl. xii, f. 1, *Ephialtes watsonii;* f. 2, *E. sagittatus.* See same author at 1850.

1852. Gerbe, Z. Observations sur la Chouette Tengmalm (Strix Tengmalmi, Gmel.). < *Rev. et Mag. de Zool.*, iv, Avril, 1852, pp. 172–174.

Sous-titre de ses *Mélanges Zoologiques*, pp. 161–174 et suiv.

1852. Hoy, P. R. Descriptions of two species of Owls, presumed to be new, which inhabit the State of Wisconsin. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, pp. 210, 211.

Nyctale kirtlandii, p. 210; *Bubo subarcticus*, p. 211. (Neither of these is new.)

1852. Kaup, [J. J.] [Notice of paper read by: "On the Classification of the Strigidæ." To be published in the Society's Transactions.] < *P. Z. S.*, xx, 1852, p. 88.

It appeared in 1859, *q. v.*

1853. Couper, W. Naturalist's Calendar, for November and December, Toronto, 1853. < *Canad. Journ.*, ii, 1853, pp. 124, 125.

Notice of *Strix nyctea.*

1854. Gloger, C. W. L. Das Fische-Fangen der Schnee-Eule, Strix nyctea (!) L., beschrieben von Audubon. < *J. f. O.*, ii, 1854, pp. 378, 379.

Translation of passages in *Orn. Biog.*, iv, pp. 436–438.

1854. Gloger, C. W. L. Eine Schnee-Eule [Nyctea nivea] weit auf dem Meere; [u. s. w.] < *J. f. O.*, ii, 1854, pp. 477, 478.

An extract from Audubon's *Orn. Biog.*, Vol. V, Appendix, pp. 382, 383, with remarks by the translator.

1854. Gloger, C. W. L. Eine Warnigung von Seiten Audubon's vor Täuschungen [u. s. w.]. < *J. f. O.*, ii, 1854, pp. 479, 480.

An extract from Audubon's *Orn. Biog.*, Vol. V, p. 386, with comments by the translator, respecting *Strix nebulosa*, etc.

1855. Newman, E. Occurrence of the Snowy Owl [Nyctea nivea] in Aberdeenshire. < *Zoologist*, xiii, 1855, p. 4761.

1856. Brewer, T. M. [On the Short-eared Owl of North America (Brachyotus cassinii, sp. n.).] < *Proc. Bost. Soc. Nat. Hist.*, v, 1856, p. 321.

This is, I think, Dr. Brewer's first and last appearance in the rôle of species-making, and an entirely unsuccessful one.

1857. [Billings, E.] On the Great Horned Owl, Bubo virginianus. < *Canad. Nat. and Geol.*, i, 1857, pp. 443–447, fig.

1857. [Billings, E.] The Snowy Day Owl. Surnia Nyctea. < *Canad. Nat. and Geol.*, i, 1857, pp. 447–450.

1857. Bishop, N. H. The Burrowing Owl of South America. (Athene cunicularia. Molina.) *Proc. Bost. Soc. Nat. Hist.*, vi, 1857, pp. 204–206.

Habits.

1857. Gadamer, —. Strix nyctea. <*Naumannia*, vii, 1857, Heft i, pp. 84, 85.

1857. Graham, D. Snowy Owls [Strix nyctea] in the Western Islands. <*Zoologist*, xv, 1857, p. 5831.

1857. H[incks], W. Canadian Strigidæ. <*Canad. Journ.*, ii, 1857, pp. 219, 220.

Recapitulation of the species.

1858. Brehm, [C.] L. Die Schleierkäuze. Strix, Lin. <*Naumannia*, viii, 1858, pp. 214–220.

1. *Strix flammea*; a. *obscura*; b. *vulgaris*; c. *adspersa*; d. *guttata*. 2. *S. margaritata*. 3. *S. paradoxa* Brm., p. 217. 4. *S. splendens*. 5. *S. kirchhoffii*, nob., p. 219. 6. *S. maculata*, nob., p. 220.

1858. Brehm, [C.] L. Die Steinkäuze. Athene, Boje, Noctua, Cuv. (Strix psilodactyla, L. Strix passerina, Gm., L. Strix noctua, Retz.) <*Naumannia*, viii, 1858, pp. 221–230.

1. *A. longicauda* Brm., p. 221. 2. *A. major* Brm., p. 222. 3. *A. passerina*; a. *psilodactyla*; b. *vulgaris*; c. *leucophrys*. 4. *A. vidali*, nob., p. 224. 5. *A. indigena* Brm., p. 226. 6. *A. intercedens* Brm., p. 227. 7. *A. meridionalis*. 8. *A. ferruginea*, nob., p. 229.

1859. Kaup, J. J. Monograph of the Strigidæ. <*Trans. Zool. Soc. Lond.*, iv, pt. vi, 1859, art. xviii, pp. 201–260, pll. lvi, lvii (generic details of structure).

Dr. Kaup was specially occupied for some years with the birds of prey, publishing meanwhile numerous papers. Three of these are upon *Strigidæ—Isis*, 1848; *Contr. Orn.*, 1851–52, and the present one. He coined many new generic names for these birds, several of which have proven available; but his work cannot be considered of great merit or utility, and would be scarcely remembered were it not for the new genera proposed. His classification is hopelessly vitiated by his 'quinarian' freaks, and his way of working out species has the reverse of felicitous result. I should not be disposed to take issue with any one who might go so far as to consider the author in mention a magnificent failure.

1859. Xantus, J. Catalogue of Birds collected in the vicinity of Fort Tejon, California, with a description of a new species of Syrnium [occidentale, p. 193]. <*Proc. Acad. Nat. Sci. Phila.*, xi, 1859, pp. 189–193.

1862. H[incks], W. The Snowy Owl [in Canada]. <*Canad. Journ.*, vii, 1862, p. 522.

1862. Passmore, S. To the Editor of the Leader. <*Canad. Journ.*, vii, 1862, p. 523.

On *Strix nyctea* in Canada.

1862. "Strix." To the Editor of the Leader. <*Canad. Journ.*, vii, 1862, pp. 522–523.

On *Strix nyctea* in Canada.

1863. Boulton, W. W. Occurrence of the Snowy Owl in Sutherlandshire, and of the Honey Buzzard in Inverness-shire. <*Zoologist*, xxi, 1863, p. 8765.

1863. Hadfield, H. Snowy Owl (Strix nyctea). <*Zoologist*, xxi, 1863, pp. 8718, 8719.

1863. Pelzeln, A. v. Ueber vier von Natterer in Brasilien gesammelte noch unbeschriebene Vögelarten. <*Verh. k.-k. zool.-bot. Gesellsch. Wien*, xiii, Oct. 10, 1863, pp. 1125–1130.

Syrnium superciliare, p. 1125 (*Strix superciliaris* on p. 1126); and three species of *Tinamidæ*.

1863. Saville, S. P. Note on the Shorteared Owl. <*Zoologist*, xxi, 1863, p. 8818.

1863. Saxby, H. L. Notes on the Snowy Owl. <*Zoologist*, xxi, 1863, pp. 8633–8639.

1863. Schlegel, H. Oti <*Mus. Hist. Nat. Pays-Bas*, 2e livr., Déc., 1862, pp. 1–30. (Pub. 1863.)

Article dated Dec., 1862, and possibly out that year in loose sheets, but the whole livr. not published till 1863.

This author's "Oti," or Eared Owls, include the genera *Otus*, *Bubo*, and *Scops*, there being treated of the first 5, of the second 18, and of the third 10 spp., with certain subspp. of these genera respectively. These species are represented in the Leyden Museum by 185 specimens, of a synonymatic and descriptive list of which the article consists. *Bubo orientalis minor*, p. 13; *Scops zorca asiaticus* et *africanus*, p. 20, subspp. nn.

1863. Schlegel, H. Striges <*Mus. Hist. Nat. Pays-Bas*, 2e livr., Déc., 1862, pp. 1–46. (Pub. 1863.)

Article dated Dec., 1862; possibly out in loose sheets that year; but the livr. not published till 1863.

1863. Schlegel, H.—Continued.

The 264 specimens of "Striges" contained in the Leyden Museum are here treated, with synonymy and description, as representing 6 spp. of *Strix*, 21 of *Ulula*, and 26 of *Noctua*. *Strix flammea americana*, p. 4; *Noctua hirsuta philippensis*, p. 26; *N. perlata capensis*, p. 37, subspp. nn.—The group is that of Owls without ear-tufts, as distinguished from the tufted species, the latter being the "Oti" of this author.

1863. Wheelwright, H. Notes on the Hawk Owl (Strix funerea), and Tengmalm's Owl (Strix Tengmalmi) as observed in Lapland. < *Zoologist*, xxi, 1863, pp. 8442–8444.

1864. Armistead, J. J. The Shorteared Owl [Strix brachyotus] perching. < *Zoologist*, xxii, 1864, p. 8876.

1865. Lord, J. K. The Pigmy Owl. Glaucidium gnoma, Wagler. . . . < *The Intellectual Observer*, vii, 1865, pp. 409–413.

1867. Elliot, D. G. Description of an apparently new species of Owl, of the Genus Scops [S. kennicottii]. < *Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 99, 100.

1867. Ward, H. Snowy Owl [in Caithness] and Honey Buzzard [in Coventry]. < *Zoologist*, 2d ser., ii, 1867, p. 912.

1868. Allen, J. A. Notes on the Red and Mottled Owls [Scops asio]. < *Am. Nat.*, ii, 1868, pp. 327–329.

The question discussed and their identity shown.

1868. Anon. Snowy Owl in Inverness-shire. < *Zoologist*, 2d ser., iii, 1868, p. 1457.

From the 'Inverness Advertiser.'

1868. Fowler, A. The Mottled Owl [Scops asio]. < *Am. Nat.*, ii, 1868, p. 109.

Continues the controversy between himself and E. A. Samuels (*op. cit.*, i, 1867, p. 496, and ii, 1868, p. 47).

1868. Gurney, J. H., Jr. Snowy Owls in Shetland. < *Zoologist*, 2d ser., iii, 1868, p. 1374.

1868. Harvie-Brown, J. A. Snowy Owl off the Scotch Coast. < *Zoologist*, 2d ser., iii, p. 1058.

1868. Maynard, C. J. The Mottled Owl [Scops asio] in confinement. < *Am. Nat.*, ii, 1868, pp. 73–77.

Extended notice, with introductory note by E. A. Samuels.

1868. Rathvon, S. S. The Barn Owl [Strix pratincola] in Pennsylvania. < *Am. Nat.*, ii, 1868, p. 489.

Account of a nesting place at Lancaster, Pa.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New Species of Birds of the Families Dendrocolaptidæ, Strigidæ, and Columbidæ. < *P. Z. S.*, xxxvi, 1868, pp. 53–60, pl. v, woodcc.

The new Owls described are *Syrnium fulvescens*, p. 58, and *Scops barbarus*, p. 56, woodcut; and a synopsis of 7 spp. of the latter genus is also given.

1868. Sclater, P. L., *and* Salvin, O. Descriptions of New or Little-known American Birds of the Families Fringillidæ, Oxyrhamphidæ, Bucconidæ, and Strigidæ. < *P. Z. S.*, xxxvi, 1868, pp. 322–329, pl. xxix.

The Owl described and figured is *Gymnoglaux lawrencii*, p. 328, pl. xxix; a synonymatic synopsis of 3 spp. of this genus is also given.

1868. Wood, W. The Mottled Owl [Scops asio]. < *Am. Nat.*, ii, 1868, pp. 370–374.

On the changes of plumage, and habits.

1868. Wright, C. A Comical Owl [Glaucidium siju]. < *Am. Nat.*, ii, 1868, pp. 420–422.

Habits of an individual in confinement.

1869. Brewster, W. The Mottled Owl again. < *Am. Nat.*, iii, 1869, pp. 334, 335.

Notes on the habits of *Scops asio* in captivity.

1869. Canfield, C. S. Habits of the Burrowing Owl of California [Athene cunicularia]. < *Am. Nat.*, ii, 1869, pp. 583–586.

Chiefly on the kind of association with *Spermophilus beecheyi*, and on the nesting.

1869. EULER, C. Notes on the Brazilian species of Strigidæ. <*J. f. O.*, xvii, 1869, pp. 242–249.

1869. GUNN, T. E. Early Nesting of the Barn Owl in Norfolk. <*Zoologist*, 2d ser., iv, 1869, p. 1721.

1869. HÜGEL, A. DE. Snowy Owl in Ross-shire. <*Zoologist*, 2d ser., iv, 1869, p. 1863.

1869. LINDEN, C. S. Nyctale albifrons [i. e., N. acadica juv.]. <*Am. Nat.*, iii, 1869, p. 556.

Capture of an individual at Buffalo, New York.

1870. ANON. Nos Hiboux. <*Naturaliste Canadien*, ii, 1870, pp. 197–206, pl. i.

Sur les *Strigidæ* du Canada. Pl. I, *Syrnium nebulosum* (d'après Audub.).

1870. CLIFTON, *Lord*. Supposed [entirely uncertain] Occurrence of the American Mottled Owl [Scops] at Cobham, Kent. <*Zoologist*, 2d ser., v, 1870, p. 2138.

1870. CLIFTON, *Lord*. Supposed Occurrence of Strix asio in Kent. <*Zoologist*, 2d ser., v, 1870, p. 2343.

Reaffirmed.

1870. GURNEY, J. H. Supposed Occurrence of the American Mottled Owl [Scops asio] in Kent. <*Zoologist*, 2d ser., v, 1870, p. 2221.

Leaves it open.

1870. HADFIELD, H. Supposed Occurrence of the American Mottled Owl [Scops asio] in Kent. <*Zoologist*, 2d ser., v, 1870, p. 2181.

Doubtful.

1870. HADFIELD, H. Supposed Occurrence of Strix asio in Kent. <*Zoologist*, 2d ser., v, 1870, p. 2382.

Criticises his lordship severely. Editor interferes to stay further proceedings.

1870. HAWKINS, H. S. [On the nesting of Nyctea nivea in Labrador.] <*Ibis*, 2d ser., vi, 1870, p. 298.

1870. STREETS, T. H. [On asymmetry in the skull of an owl.] <*Proc. Acad. Nat. Sci. Phila.*, 1870, p. 73.

1871. ANON. Hiboux [se montrent très communs à Quebec]. <*Naturaliste Canadien*, iii, 1871, p. 28.

1871. ASHBY, R. Snowy Owl in County Mayo. <*Zoologist*, 2d ser., vi, 1871, p. 2765.

1871. CLIFTON, *Lord*. Note on the alleged Identity of the American Red Owl [Scops asio] with the Mottled Owl [Scops asio]. <*Zoologist*, 2d ser., vi, 1871, p. 2606.

Returns to the charge with a flank movement.

1871. COLLETT, R. On the Asymmetry of the Skull in Strix tengmalmi. <*P. Z. S.*, xxxvi, 1871, pp. 739–743, woodcc.

1871. HADFIELD, H. Mottled and Red Owl [Scops asio]. <*Zoologist*, 2d ser., vi, 1871, pp. 2680, 2681.

Flank movement ineffectual; charge resumed. Editor dismisses both belligerents forever.

1871. KESSLER, G. Die Schnee-Eule [Nyctea nivea] auf Hiddens-Oee erlegt. <*J. f. O.*, xix, 1871, p. 224.

1871. VERRILL, A. E. Occurrence of Kirtland's Owl [Nyctale "albifrons," i. e., N. acadica juv.] in Maine. <*Am. Nat.*, v, 1871, p. 119.

1872. COLLETT, R. Om Kraniets Assymetri hos Nyctala tengmalmi. <*Vidensk. Selsk. Forh. Christ.*, 1872, pp. 68–73, woodcc.

Mainly a translation of his paper in *P. Z. S.*, 1871, p. 739.

1872. COUES, E. A New Bird [Glaucidium ferrugineum] to the United States. <*Am. Nat.*, vi, 1872, p. 370.

1872. ELLIOT, D. G. On Nyctale kirtlandi. <*Ibis*, 3d ser., ii, 1872, pp. 48–52.

Identifies it with *N. tengmalmi*; full synonymy and description. But *cf.* Ridgway, *Am. Nat.*, 1872, pp. 283–285.

1872. GURNEY, J. H., JR. Snowy Owl at Southrepps, Norfolk. <*Zoologist*, 2d ser., vii, 1872, p. 2912.

1872. RIDGWAY, R. Relationship of the American White-fronted Owl. <*Am. Nat.*, vi, 1872, pp. 283–285.

Critical examination (with ref. to Elliot, *Ibis*, Jan., 1872) of *N. albifrons*, which is determined to be *N. acadica* juv. Characters and synonyms of this species and *N. tengmalmi*.

1872. WHITAKER, J., JR. Abundance of Shorteared Owls in Nottinghamshire. <*Zoologist*, 2d ser., vii, 1872, p. 2992.

1873. A[LLEN], J. A. The White-fronted Owl in Canada. <*Am. Nat.*, vii, 1873, pp. 427–429.

Maintains that this is *Nyctale acadica* juv.

1873. RIDGWAY, R. Revision of the . . . and the Strigine Genus, Glaucidium. <*Proc. Boston Soc. Nat. Hist.*, xvi, 1873, pp. 73–106.

For full title and comment, see under FALCONIDÆ, same date and author.

1873. WHITAKER, J., JR. Shorteared Owl in Nottinghamshire. <*Zoologist*, 2d ser., viii, 1873, p. 3489.

1874. COUES, E. Pet Owls [Bubo virginianus]. <*Am. Sportsman*, iii, 1874, p. 354.

1874. GRATOR, A. Captive Owl fed by its Mate. <*Am. Sportsman*, iii, 1874, p. 213.

1874. GURNEY, J. H. Nidification of the Snowy Owl in Confinement. <*Zoologist*, 2d ser., ix, 1874, p. 4154.

1874. HUDSON, W. H. On the Habits of the Burrowing Owl (Pholeoptynx cunicularia). <*P. Z. S.*, xlii, 1874, pp. 308–311.

1874. RIDGWAY, R. Discovery of a Burrowing Owl in Florida. <*Am. Sportsman*, iv, No. 14, July 4, 1874, p. 216, fig. 1.

Description of *Speotyto cunicularia* var. *floridana*, var. n., with account of habits. Remarks upon geographical distribution of American birds, and peculiarities of Florida in this respect.

1874. RIDGWAY, R. Two Rare Owls [Syrnium occidentale, Micrathene whitneyi] from Arizona. <*Am. Nat.*, vii, No. 4, Apr., 1874, pp. 239, 240.

The article includes a notice of *Asturina plagiata*.

1875. ANON [EDITORIAL]. [Capture of Speotyto hypogæa in New York City.] <*Forest and Stream*, v, Aug. 12, 1875, p. 4.

1875. DEANE, R. Occurrence of the burrowing Owl in [Newburyport,] Massachusetts. <*Rod and Gun*, vi, May 15, 1875, p. 97.

Read before *Nutt. Ornith. Club*, May 6; notes also other rarities.

1875. GURNEY, J. H. On the Snowy Owl [Nyctea nivea] nesting in Confinement. <*Zoologist*, 2d ser., x, Aug., 1875, p. 4573.

1875. GURNEY, J. H. Further Note [Zool., s. s., 4573] on the Young of the Snowy Owl [Nyctea scandiaca] hatched in Confinement. <*Zoologist*, 2d ser., x, Oct., 1875, pp. 4663, 4664.

1875. GURNEY, J. H. [On the breeding of Nyctea nivea in confinement.] <*Ibis*, 3d ser., v, 1875, pp. 517, 518.

1875. "PETE." The Great Horned Owl (Bubo virginianus) [attacks a dog]. <*Rod and Gun*, vii, Dec. 11, 1875, p. 163.

1875. RIDGWAY, R. More About the Florida Burrowing Owl [Speotyto cunicularia var. floridanus]. <*Rod and Gun*, vi, Apr. 3, 1875, p. 7. (See also *Am. Sportsman* for July 4, 1874.)

1875. SHARPE, R. B. Contributions to a History of the Accipitres. The Genus Glaucidium. <*Ibis*, 3d ser., v, 1875, pp. 35–59, pll. i, ii.

Elaborate, critical, with special reference to R. Ridgway's paper on same subject (*Pr. Bost. Soc.*, xvi, 1873, pp. 91–106). 9 spp. *G. griseiceps*, p. 41, pl. ii, f. 2; *G. ridgwayi*, p. 58, spp. nn.; pl. i, *G. gnoma*; pl. ii, f. 1, *G. pumilum*.

1875. SHARPE, R. B. Contributions to a History of the Accipitres. The Genus Strix of Linnaeus, and its Type. <*Ibis*, 3d ser., v, 1875, pp. 324–328.

Strix is left for *S. flammea*. But see especially NEWTON, *Ibis*, 1876, pp. 94–104.

1875. SHARPE, R. B. Catalogue | of the | Striges, | or | Nocturnal Birds of Prey, | in the | collection | of the | British Museum. | By R. Bowdler Sharpe. | London: | printed by order of the Trustees. | 1875. 1 vol. 8vo. pp. i–xii, 1–326, pll. i–xv, and numberless cuts in text.

This is the second vol. of the new Catalogue of the Birds of the British Museum, entitled as follows: Catalogue | of the | Birds | of the | British Museum. | Volume II. | London: | printed by order of the Trustees. | 1875. It catalogues 1,090 specimens of Owls, of which there are in the Museum 153 species, leaving 37 desiderata of the 190 spp. supposed to be known. The plan of the work, as was that on the *Falconidæ*, which forms Vol. I, is much more highly developed than was that of the old Brit. Mus. Catalogues, being in fact a considerable monograph of the birds of which the work treats. The author regards the *Striges* as an order, which he divides into two families, *Bubonidæ* and *Strigidæ*, according to the structure of the feet and sternum; the latter family containing only the genera *Strix* ("Barn Owls") and *Phodilus*. The *Bubonidæ* are divided into the two subfamilies, *Buboninæ* and *Syrniinæ*, according to the structure of the ear-conch and facial disc. Analyses of all the genera are given, and the species are very elaborately described, with extensive synonymy, geographical distribution, and critical comment. Fourteen genera of *Buboninæ* and three of *Syrniinæ* are recognized. Analytical keys to the species, as well as to the genera, are presented. Whatever may be said of the author's general attitude in classification, and in discrimination of species, his work is obviously very carefully and faithfully done.

The following appear to be new names: *Scops stictonotus*, p. 54; *S. rufipennis*, p. 60; *S. bouruensis*, p. 73; *S. albiventris*, p. 78; *S. guatemalæ*, p. 112; *Syrnium spilonotum* ("Gray, descr. nulla"), p. 277.

The plates are as follows: I, *Scotopelia bouvieri*. II, *Bubo shelleyi*. III, f. 1, *Scops capensis;* f. 2, *S. stictonotus*. IV, f. 1, *S. malayanus;* f. 2, *S. gymnopodus*. V, *S. magicus*. VI, *S. leucospilus*. VII, f. 1, *S. morotensis;* f. 2, *S. bouruensis*. VIII, f. 1, *S. albiventris;* f. 2, *S. mendanensis*. IX, *S. guatemalæ*. X, *S. hypogramma*. XI, f. 1, *Ninox hantu;* f. 2, *N. ochracea*. XII, f. 1, *N. fusca;* f. 2, *N. squamipila*. XIII, f. 1, *Glaucidium cobanense;* f. 2, *G. tephronotum*. XIV, *Strix flammea*.

1875. "SPEOTYTO FLORIDANUS." Adventures of a Scientific Owl. < *Am. Sportsman*, v, Mar. 27, 1875, p. 401.

Humorous history of *Speotyto floridanus*. The bird, confined in the Smithsonian Tower, destroyed the type specimen *Helminthophaga leucobronchialis;* cf. COUES, *B. C. V.*, pt. i, 1878, p. 213.

1875. "WOLVERENE." My Owl [Scops asio], etc. < *Am. Sportsman*, v, 1875, Feb. 20, p. 347.

1876. ANON. [Nyctea nivea unusually abundant at Boston.] < *Forest and Stream*, vii, Nov. 23, 1876, p. 245. (See p. 261.)

1876. ANON. [Nyctea nivea at Norfolk, Va., and in South Carolina.] < *Forest and Stream*, vii, Dec. 7, 1876, p. 276. (See pp. 245, 261.)

1876. BOIES, A. H. A Wary Owl [Nyctea nivea?]. < *Rod and Gun*, ix, Nov. 25, 1876, p. 116.

1876. "CAU." The Snowy Owls [at Boston]. < *Forest and Stream*, vii, Nov. 30, 1876, p. 261. (See p. 245.)

1876. CLARK-KENNEDY, A. J. Barn Owl and Shrew. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4922, 4923.

1876. DUNBAR, S. M. Bad Place for Owls. < *Rod and Gun*, ix, Nov. 25, 1876, p. 116.

Various species at Baldwinsville, N. Y.

1876. GATCOMBE, J. Occurrence of the Snowy Owl on Dartmoor. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4921, 4922.

1876. GURNEY, J. H., JR. Claws of the Hawk Owl. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4795.

1876. GURNEY, J. H., JR. Barn Owl and Shrew. < *Zoologist*, 2d ser., xi, Apr., 1875, p. 4871.

1876. GURNEY, J. H., JR. Barn Owl and Rat. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4871.

1876. GURNEY, J. H., JR. On the Snowy Owl Nesting in Confinement. < *Zoologist*, 2d ser., xi, Aug., 1876, pp. 5041, 5042.

1876. Howell, T. H. The Short-eared Owl [in Illinois]. < *Forest and Stream*, vii, Nov. 30, 1876, p. 261. (See p. 342.)

1876. "J. B. S." The Arctic Owl [Nyctea nivea?]. < *Forest and Stream*, vii, Nov. 16, 1876, p. 230.

1876. Mitford, R. Barn Owl and its Castings. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4832.

Cf. *op. cit.*, p. 4870.

1876. Mitford, R. Owl-pellets: Correction of an Error. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4870.

Cf. *op. cit.*, p. 4832.

1876. Murray, H. B. Snowy Owl in County Fermanagh. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4871.

1876. Newton, A. On the Assignation of a Type to Linnæan Genera, with especial reference to the Genus Strix. < *Ibis*, 3d ser., vi, Jan., 1876, pp. 94–104.

The opinion expressed by the writer (*Yarr. Br. B.*, 4th ed., i, p. 150) having been demurred to by Salvin (*Ibis*, 1875, pp. 66, 67) and Sharpe (*ibid.*, pp. 324–328), this occasion is taken to reconsider the matter, and reiterate the views on nomenclature already expressed. It is an important paper in its bearing on the general question, discussing certain principles touching nomenclature at large, aside from the special case of *Strix*. The author has decided views on the subject, and adheres to certain rules with such thorough consistency that he scarcely provides for some emergencies which may arise, and appear to many persons to require some elasticity of application of a principle he would make inflexible. He fortifies his position with his usual cogency of argument and his conspicuous scholarly attainments.

Prof. Newton finds that, among the 78 genera of Linn. *S. N.*, 1766, there are only 12 which Linnæus can be considered to have invented: *Rhamphastos*, *Buceros*, *Procellaria*, *Diomedea*, *Phaeton*, *Palamedea*, *Mycteria*, *Cancroma*, *Parra*, *Didus*, *Menura*, *Pipra*. He doubts not that had Linnæus known our modern practice, he would have designated as the type of each of his genera that species to which the name he adopted as generic had formerly been specifically applied; this seeming so obvious that he wonders at G. R. Gray and others who invented the arbitrary rule of selecting the first-named Linnæan species as the type of the genus under which it stands. He finds it curious that so few Linnæan genera, such as *Vultur*, *Falco* and *Psittacus* (and 9 others) had been used by pre-Linnæan writers in a generic sense. The authors whence Linnæus derived his genera are Gesner, Belon, Aldrovandus, Clusius, Johnston, Brown, Barrére, Klein, Moehring, Brisson, and perhaps one or two others.

Following out his principle, the author determines the types of 56 Linnæan genera to be as follows (to save space I simply couple the generic and specific terms): *Strix* stridula, *Lanius* excubitor, *Buphaga* africana, *Crotophaga* ani, *Corvus* corax, *Oriolus* galbula, *Paradisea* apoda, *Bucco* capensis, *Cuculus* canorus, *Jynx* torquilla, *Picus* martins, *Sitta* europæa, *Alcedo* ispida, *Merops* apiaster, *Upupa* epops, *Certhia* familiaris, *Trochilus* colubris, *Alca* torda, *Procellaria* pelagica, *Diomedea* exulans, *Pelecanus* onocrotalus, *Plotus* anhinga, *Phaeton* æthereus, *Rhynchops* nigra, *Sterna* hirundo, *Phoenicopterus* ruber, *Platalea* leucorodia, *Mycteria* americana, *Cancroma* cochlearia, *Ardea* cinerea, *Tantalus* loculator, *Recurvirostra* avocetta, *Hæmatopus* ostralegus, *Fulica* atra, *Parra* jacana, *Rallus* aquaticus, *Psophia* crepitans, *Otis* tarda, *Struthio* camelus, *Didus* ineptus, *Pavo* cristatus, *Meleagris* gallopavo, *Crax* alector, *Phasianus* colchicus, *Numida* meleagris, *Alauda* arvensis, *Sturnus* vulgaris, *Turdus* viscivorus, *Ampelis* garrulus, *Loxia* curvirostra, *Tanagra* tatao, *Fringilla* cœlebs, *Muscicapa* grisola, *Pipra* leucocilla, *Hirundo* rustica, *Caprimulgus* europæus.

Out of those 56 genera, only *Strix* and three or four others have, from the author's way of regarding them, a type other than that commonly assigned to them.

The case of *Strix* is then elaborately discussed, and the author maintains, in summing his answer to his critics,

"(1) That the type, according to the modern notion, of the Linnæan genus *Strix*, is clearly and indisputably *S. stridula*.

"(2) That in subdividing a genus Brisson's right to affix its original name to the portion of it he chose is not affected by his exceptional position as regards specific names, and that the type of his restricted genus *Strix* is also *S. stridula*.

"(3) That should ornithologists, in the teeth of the law, persist in disregarding this right, there is a strong probability, which may at any moment become a certainty, of its being indefeasably established without reference to any exception whatever."

1876. Nicholls, H. Abundance of the Shorteared Owl near Kingsbridge. < *Zoologist*, 2d ser., xi, Mar., 1876, pp. 4831, 4832.

1876. Ridgway, R. The Genus Glaucidium. < *Ibis*, 3d ser., vi, Jan., 1876, pp. 11–17, pl. i.

Cf. Ridway, *Proc. Bost. Soc.*, xvi, 1873, pp. 91–106, and Sharpe, *Ibis*, 3d ser., v, Jan., 1875, pp. 35–39; the latter being a review of the former. "The present paper represents the conclusions arrived at after a careful reconsideration of the subject, with much additional material, and the benefit of Sharpe's monograph, . . ." The author here allows *GG. gnoma, jardini, nanum, ferrugineum, pumilum*, and *siju*, all of which are analyzed, and several of which are described at length, with synonymy. The plate gives *G. jardini*, in its two phases of coloration.

1876. [Salvin, O.] [Notice of Sharpe's Catalogue of the Striges in the British Museum.] < *Ibis*, 3d ser., vi, Apr., 1876, pp. 273, 274.

1876. Sharpe, R. B. On the Geographical Distribution of Barn Owls. < *Rowl. Orn. Misc.*, pt. iv, May, 1876, pp. 269–298, 3 maps; pt. v, Oct., 1876, pp. 1–21.

In this article Mr. Sharpe goes much further into the subject of the distribution, local names, etc., of *Strix flammea* and its allies, than he did in the *Brit. Mus. Cat.*, ii, pp. 294–296, where his general conclusions are stated. He divides the birds into the true Barn Owls and the Grass Owls, of which latter two African and Asiatic species are known. Map I shows the distribution of the different races of *Strix flammea;* Map II the ranges of *S. novæ hollandicæ*, *S. tenebricosa*, and *S. castanops;* Map III, of *S. candida*, *S. capensis*, and *S. thomensis*—these three being the Grass Owls.

1876. Sharpe, R. B. [Remarks on Exhibition of a British-killed specimen of Surnia ulula.] < *P. Z. S.*, Apr. 4, 1876, pp. 334, 335.

1877. Anon. [Nyctea nivea on its southward migration invariably accompanied by Ptarmigans.] < *Forest and Stream*, viii, Feb. 22, 1877, p. 33.

1877. Brewer, T. M. A new Form of Surnia [ulula] to New England. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 78.

1877. Coale, H. K. Notes on [occurrences, etc., of] Nyctale acadica. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 83, 84.

1877. Deane, R. Probable Breeding of the Acadian Owl (Nyctale acadica) in Massachusetts. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 84.

1877. Deane, R. Unusual abundance of the Snowy Owl (Nyctea scandiaca) in New England. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 9–11.

1877. Frazar, A. M. The Mottled Owl [Scops asio] as a Fisherman. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 80.

1877. Ragsdale, G. H. An Inquiry [concerning identity of supposed Speotyto cunicularia var. hypogæa, Cs.]. < *Forest and Stream*, viii, Feb. 22, 1877, p. 33.

1877. "R. T. G." [*and* Editor]. A tough owl [colliding with railway train]. < *Forest and Stream*, vii, Feb. 1, 1877, p. 405.

1877. [Sclater, P. L.] [Note on the abundance of Nyctea nivea in Europe and America in the winter of 1876–77.] < *P. Z. S.*, Jan. 2, 1877, p. 1.

1877. [Sclater, P. L.] [On addition of a Mexican Eared Owl (Asio mexicanus) to the Society's Menagerie.] < *P. Z. S.*, Mar. 6, 1877, pp. 159, 160.

Important synonymatic note on the name here used.

1877. [Sclater, P. L., *and* Salvin, O.] Irruption of Snowy Owls [Nyctea nivea] from the North. < *Ibis*, 4th ser., i, Jan., 1877, pp. 131, 132.

Occurring in the United States.

1878. Anon. The Acadian Owl [Nyctale acadica]. < *The Oölogist*, iv, No. 5, July, 1878, p. 38.

Note of its habits as observed in Central New York.

1878. Abbott, C. C. The barn owl. < *The Country*, i, Mar. 2, 1878, p. 260.

1878. Allen, C. A. The Pygmy Owl (Glaucidium californicum). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 193.

Note of habits. Mobbed by small birds.

1878. [Fitch, E. H.] The Great Grey Owl. (Syrnium cinereum.) < *The Journ. of Sci.* (Toledo, Ohio), 2d ser., i, No. 5, Aug., 1878, cut.

Popular biography, with an excellent figure.

1878. JASPER, T. The Barred Owl (Syrnium nebulosum). < *The Oölogist*, iv, No. 3, May, 1878, pp. 21, 22.

A notice of the habits of this species, from his 'Birds of North America,' Part 6.

1878. LAWRENCE, G. N. On the Members of the Genus Gymnoglaux. < *Ibis*, 4th ser., ii, Apr., 1878, pp. 184–187.

The author maintains "three well-marked species,"—*nudipes* Daud., from Porto Rico; *newtoni* Lawr., from St. Croix and St. Thomas; and *lawrencei*, S. and S., from Cuba,—which are described and compared. Editors incline to differ.

1878. RIDGWAY, R. A Review of the American Species of the Genus Scops. < *Proc. U. S. Nat. Mus.*, i, 1878, pp. 85–117.

This is an elaborate article, in which the several American species are described at full length and critically discussed, upon more material than appears to have been commanded by previous writers. The six species recognized are thrown into three groups, according to the feathering of the feet.—A, *S. nudipes* alone, with toes and lower half or more of tarsus bare; B, with *SS. brasilianus*, *barbarus*, and *flammeolus*, with toes alone, or merely lower end of tarsus, completely naked; C, *SS. asio* and *cooperi* (n. sp., p. 116), with toes strongly bristled, sometimes densely feathered, at base. *S. nudipes* stands alone, without subspecies. Of *S. brasilianus* are recognized subspp. *brasilianus*, *atricapillus*, *ustus*, *guatemalæ*, and *cassini* (subsp. n., p. 102). *SS. barbarus* and *flammeolus* have no subspecies. Of *S. asio* are recognized subspp. *asio*, *maccalli*, *kennicotti*, *floridanus*, and *maxwelliæ*. *S. cooperi* has no subspp. Besides these six distinct forms, with their several races, the author treats *S. trichopsis*, Wagl., as a doubtful form. The descriptions given are very elaborate, and the synonymy is copious. Cf. *Ibis*, 1879, p. 209.

1878. [SCOTT, W. E. D.] [Attacks by Scops asio upon human beings.] < *The Country*, i, Feb. 23, 1878, p. 245.

1878. [SCOTT, W. E. D.] Winter Notes. Owls. < *The Country*, i, 1878, pp. 229, 244.

1878. "SUBSCRIBER." [Attack upon a man by] Another Vicious Owl. < *Forest and Stream*, x, Mar. 14, 1878, p. 95.

1878. WILLISTON, S. W. The Prairie Dog, Owl [Speotyto cunicularia hypogæa] and Rattlesnake. < *Am. Nat.*, xii, No. 4, Apr., 1878, pp. 203–208.

1879. ANON. [COOPER, J. G.?] The Great Gray Owl [Syrnium cinereum]. < *Pacific Rural Press*, xvii, No. 1, Jan. 4, 1879, p. 9, fig.

Compiled account of the species, and a very good figure, from Baird, Brewer and Ridgway's *Hist. N. A. Birds.*

1879. BALLOU, W. H. Does the Snowy Owl [Nyctea nivea] Breed in the United States? < *Am. Nat.*, xiii, No. 8, Aug., 1879, pp. 524, 525.

Asserting as a fact that the bird is seen along Lake Ontario throughout the year, and that in the "North Woods" of New York the writer once saw a young Snowy Owl not nearly full-fledged.

1879. COOPER, W. A. Notes on the Breeding Habits of the California Pygmy Owl (Glaucidium californicum), with a Description of its Eggs. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 86, 87.

Note by J. A. A[llen] refers to *Pr. Bost. Soc. Nat. Hist.*, xix, 1877, p. 232, as the only previous account of the eggs of this species, based on the same specimens as here described.

1879. DEANE, R. Capture of a Third Specimen of the Flammulated Owl (Scops flammeola) in the United States, and first Description of its Nest. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, p. 188.

1879. HAWES, C. A. Nesting of the Barred Owl (Syrnium nebulosum). < *The Oölogist*, iv, No. 10, May, 1879, pp. 77, 78.

From original observations made near Boston, Mass.

1879. KING, M. B. A. A Family Arrangement [Bubo virginianus]. < *Science News*, i, No. 16, June 15, 1879, p. 256.

Occurrence of five young, apparently of different ages, in one nest.

1879. [WOOD, C. S.] Scops flammeola. < *Colorado Springs Gazette* [daily newspaper], Sept. 3, 1879.

First publication of the exhibition by C. E. Aiken of the fourth specimen of this species known from the United States.

Falconidæ.

[NOTE.—Among papers on Birds of Prey there are not a few relating to more than one of the recognized families of this order. As I have no head under which to range articles on *Raptores* in general, I bring under *Falconidæ* the titles relating to American Raptores, excepting those treating exclusively of *Strigidæ* or of *Cathartidæ*.]

1781. MERREM, B. Anatomische Beschreibung des weissköpfigen Adlers. < *Vermischte Abhandl. zur Thiergesch. Göttingen*, —, 1781, pp. 145-—.

Not seen—the title from Giebel.

1784. HUBER, [J.] Observations | sur le vol des | Oiseaux de Proie, | Par M. Huber, de Genève. | Accompagnées de figures, dessinées par l'Auteur. | [Dessin.] | A Genève, | Chez Paul Barde, Imprimeur-Libraire. | — | M. DCC. LXXXIV. 1 vol. 4to in size and by signatures, 8vo type-bed, pp. 51, with 6 folded pll.

1784. ÖDMAN, S. Fiskljusens (Falconis Haliæti) Hushållning och Historia. < *Kongl. Vetensk. Acad. Nya Handl.*, v, 1784, pp. 301-309.

1784. ÖDMAN, S. Falco albicilla, Svet. Hafs-örn. < *Nova Acta Reg. Soc. Sc. Upsal.*, iv, 1784, pp. 225-238.

Not seen.

1798. CARLSON, G. v. Tal med Utkast till Falk-Slägtets [Falconidæ] i synnerhet de Svenska Arternas, Indelning och Beskrifning; hållet för K. Vet. Akad. vid Praesidii nedläggande d. 31 Jan. 1798 af Gust. v. Carlson. Stockholm. 1798. 8vo. pp. 30.

Not seen.

1798. LJUNGH, S. I. Beskrifning på Svarta Örnen, Falco Fulvus canadensis [Aquila chrysaëtus], en ny Recrüt för Fauna Svecica. < *Kongl. Vetensk. Acad. Nya Handl.*, xix, 1798, pp. 235-240.

In Swedish and Latin.

1801-02. WACHTMEISTER, H. Försök til Svenske Falk-Arters beskrifning och bestämmande. < *Kongl. Vetensk. Acad. Nya Handl.*, xxii, 1801, pp. 171-207; xxiii, 1802, pp. 249-274.

FF. albicilla, fulvus, nævius?, haliaëtus, lagopus, islandicus, gyrfalco, milvus, buteo, apivorus, æruginosus, rufus, pp. 171-207, 1801.—*FF. palumbarius, gallinarius, peregrinus*, ——?, ——?, *subbuteo, tinnunculus, lithofalco, nisus*, pp. 249-274, 1802.

1809. CUVIER, FRÉD. Du Pygargue et de l'orfraie, Falco pygargus et falco ossifragus, Linnæus. < *Ann. du Mus. Hist. Nat.*, xiv, 1809, pp. 301-313.

Sur les noms que les anciens ont donné aux aigles dont ils ont parlé, et sur l'application de ces noms aux espèces que nous connoissons—Comparaisons des descriptions que les anciens ont donné—Le pygargue et l'orfraie paroissent être de la même espèce, et ce dernier nom doit être conservé.

1810. SAVIGNY, J. C. Système | des | Oiseaux | de l'Egypte et de la Syrie, | présenté a l'Assemblée Générale de la Commission, | le 29 Août 1808, | Par Jules-César Savigny, Membre de l'Institut de l'Egypte. | [Dessin.] | A Paris, | de l'imprimerie Imperriale [sic]. | — | M. DCCC. X. 1 vol. folio. pp. 1-54, 1-16.

Petite édition, revue par l'auteur, tirée à 30 exemplaires. Extraite de la *Descr. de l'Égypte, Partie Systématique, Oiseaux de l'Égypte et de la Syrie.* Exemplaire dans la *Bibliothèque de l'Acad. des Sc. Nat. de la Philadelphie*, inscrite "à M. Latreille, comme un témoignage des sentimens de l'auteur" (autographe de l'auteur), plus tard présentée à l'Académie par M. le Dr. T. B. Wilson.

The copy of this extremely rare piece consists of 54 + 16 pages folio, including the two titles. The full title is transcribed above. The prel. title is: Oiseaux | de l'Égypte et de la Syrie. | — | Partie Systématique. | With it is bound 16 pages of "Observations," half-titled as follows: Observations | sur | le Système des Oiseaux | de l'Égypte et de la Syrie. | The 54 pages are extracted from the general work on Egypt, apparently for the purpose of following them up with the "Observations." These are in defense of the "Système," which had been critized in high places.

1810. **Savigny, J. C.**—Continued.

The first order, *Raptores*, of Savigny's System, appeared in 1809 in the first livraison of the general work, and was intended to form part of a considerable treatise. It is here that we find the several new generic names of Savigny's for Birds of Prey. In this extract of 1810 the 17 genera which the author adopts are characterized on pp. 8, 9. They are as follows:—

Vultures.—1. *Gyps.* 2. *Ægypius.* 3. *Neophron.* 4. *Phene.*

Accipitres.—5. *Aquila.* 6. *Haliæetus* (observe the original orthography of this name). 7. *Milvus.* 8. *Circus.* 9. *Dædalion.* 10. *Pandion.* 11. *Elanus.* 12. *Falco.*

Ululæ.—13. *Noctua.* 14. *Scops.* 15. *Bubo.* 16. *Syrnium.* 17. *Strix.*

The species of these genera are given as follows; they include many new names:—

1. *Gyps vulgaris*, p. 11. 2. *Ægypius niger*, p. 14. 3. *Neophron percnopterus*, p. 16. *Phene ossifraga*, p. 18; 5. *P. gigantea*, p. 20. 6. *Aquila heliaca*, p. 22; 7. *A. fulva*, p. 22; 8. *A. melanæetos*, p. 24. 9. *Haliæetus nisus*, p. 26. 10. *Milvus ictinus*, p. 28; *M. ætolius*, p. 29. 12. *Circus æruginosus*, p. 30; 13. *C. rufus*, p. 31; 14. *C. gallinarius.* 15. *Dædalion palumbarius*, p. 33; 16. *D. fringillarius*, p. 34. 17. *Pandion fluviatilis*, p. 36. 18. *Elanus cæsius*, p. 38. 19. *Falco tinnunculus*, p. 39; 20. *F. smirillus;* 21. *F. communis.* 22. *Noctua glaux.* 23. *Scops ephialtes.* 24. *Bubo otus;* 25. *B. ascalaphus.* 26. *Syrnium ululans.* 27. *Strix flammea.*

The text consists chiefly (besides brief characters of the species and genera) of a most elaborate and erudite synonymy of the names applied to these birds by ancient and modern authors.

The interesting copy handled is annotated in Savigny's handwriting, and was formerly presented by him to Latreille.

1818. **Wilson, J.** Observations on some Species of the Genus Falco of Linnæus. < *Mem. Wernerian Nat. Hist. Soc.*, ii, pt. ii, 1818, pp. 569–617.

Read Feb., 1817.—An elaborate and carefully prepared criticism, not to be overlooked in any study of the subject, in spite of errors now fully apparent.—Specific distinction of *Falco fulvus* and *F. chrysaëtus* maintained. Identity of *Falco albidus* Gm. and *F. variegatus* with *F. apivorus*.—Significance of the terms "Haggard" and "Gentle" or "Gentil."—Discussion of *Falco gentilis*, considered as "one of the numerous varieties of the "Common Falcon."—On *Falco palumbarius*.—History of *F. communis*, to which *FF. peregrinus*, *hornotinus*, *fuscus*, *leucocephalus*, *albus*, *gibbosus*, *rubens*, *maculatus*, and *niger*, all of Brisson, and perhaps some other names, are considered referable.

1820. **Kuhl, H.** [Gehirn einer] Aquila ossifraga (IV.). < *Van Hasselt und Kuhl's Beit. zur Vergl. Anat.*, ii^te Abtheil., 1820, pp. 60, 61, pl. iv, f. 1–3, pl. v.

Pl. iv, f. 4–6, dasselbe des *Psittacus aestivus.*

1822. **Green, J.** Falco leucocephalus—Bald Eagle. < *Sillim. Am. Journ. Sci.*, iv, 1822, pp. 89, 90.

Note of capture of a specimen.

1823. **Selby, P. J.** Some Observations on the Falco chrysaëtos and F. fulvus of Authors, proving the Identity of the two supposed species. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. ii, 1823, pp. 428–433, fig. on p. 431.

With reference to J. Wilson's article in the same Memoirs, 1823, *q. v.* The author makes the point plain.

1823. **Wilson, J.** Remarks on the different Opinions entertained regarding the specific Distinction, or Identity, of the Ring-tailed and Golden Eagles. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. ii, 1823, pp. 434–448.

"Notwithstanding the arguments which have been brought forward by Mr Selby and other competent judges," the writer adheres to his opinion of their specific distinctness, and supports his views at great length.

1824. **[Brehm, C. L.]** Der nordische Seeadler. (Weisschwänzige Seeadler. Beinbrecher.) Aquila borealis, Brehm. (Aquila albicilla et ossifraga. Falco albicilla et ossifragus, Linn.) < *Ornis*, Heft i, 1824, pp. 1–19.

1824. **Vigors, N. A.** Sketches in Ornithology: or, [etc.] < *Zool. Journ.*, i, 1824, pp. 308–446; [etc.]

This is the first instalment of a series of articles under the above head, running through several vols. and years of the periodical. It is subtitled: On the Groups of the *Falconidæ*. (pp. 312–346.)

This portion treats of the *Falconidæ*, which are analyzed and classified upon the quinary plan, being divided into 5 stirpes—*Accipitrina*, *Falconina*, *Buteonina*, *Milvina*, *Aquilina*. Further comment upon the article is therefore superfluous. *Harpagus*, g. n., p. 327.

1825. LESSON, [R.] P. Quelques Observations sur les Falco chrysaetos et fulvus, qui prouvent l'identité de ces deux espèces; par P.-J. Selby. . . . < *Féruss. Bull.*, 2e sect., vi, 1825, pp. 96, 97.
Extrait des *Mém. Wern. Soc.*, iv, pt. ii, 1823, pp. 428–433, *q. v.*

1825. LESSON, [R.] P. Remarques sur diverses opinions émises sur la distinction spécifique, ou sur l'identité des Aigles commun et doré; par James Wilson. . . . < *Féruss. Bull.*, 2e sect., vi, 1825, p. 97.
Extrait des *Mém. Wern. Soc.*, iv, pt. ii, 1823, pp. 434–448, *q. v.*

1825. LESSON, R. P. Esquisses ornithologiques, ou observations sur les rapports qui existent dans un des groupes les plus nombreux en espèces d'oiseaux; par N.-A. Vigors, jun. . . . < *Féruss. Bull.*, 2e sect., vi, 1825, pp. 406–408.
Extrait du *Zoological Journal*, i, Oct., 1824, pp. 308–446; cette partie des "Esquisses" renfermant la classification "quinaire" des Falconidés.

1825. VIGORS, N. A. On a new genus of Falconidæ [Gampsonyx swainsonii, sp. n., p. 69]. < *Zool. Journ.*, ii, No. 5, Apr., 1825, pp. 65–70.
A subhead, being part of the 2d instalment of "Sketches in Ornithology; or," etc. Cf. *Féruss. Bull.*, 2e sect., vii, 1826, p. 106; *Isis*, 1830, pp. 839, 840.

1825. VIGORS, N. A. On a new genus of Falconidæ [Nauclerus riocourii, p. 386, sp. n.]. < *Zool. Journ.*, ii, No. 7, Oct., 1825, pp. 385–387.
A subhead, being part of the fourth instalment (pp. 368–405) of the series of papers entitled "Sketches on Ornithology; or," etc. Cf. *Féruss. Bull.*, ix, 1826, p. 91; *Isis*, 1830, pp. 1042, 1043.

1826. LESSON, R. P. Esquisses ornithologiques, etc., sur un genre nouveau des Falconidæ; par M. N. A. Vigors. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 106.
Gampsonix (sic) *swainsonii.—Zool. Journ.*, ii, No. 5, Avril, 1825, p. 65.

1826. LESSON, [R. P.] Sur un nouveau genre de la famille des Faucons; par Vigors. . . . < *Féruss. Bull.*, 2e sect., ix, 1826, p. 91.
Nauclerus riocourii.—Extrait du *Zool. Journ.*, ii, 1825, pp. 385–387.

1829. AUDUBON, J. J. Notes on the Bird of Washington (Falco washingtoniana), or Great American Sea Eagle (fig. 53). < *Loudon's Mag. Nat. Hist.*, i, 1829, pp. 115–120.

1829. JOHNSON, J. Vision of Birds of Prey. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 473.
From *Medico-Chirurgical Review.*

1829. "T. F." An Arrangement of the different Species of Falcons found in Great Britain. < *Loudon's Mag. Nat. Hist.*, i, 1829, pp. 217–221, figg. 85–90.
14 spp., under 6 sections.

1830. BENNETT, [E. T.] [Polyborus ? hypoleucus, sp. n.] < *P. Z. S.*, Dec. 14, 1830, p. 13.

1830. BREHM, C. L. Die grossen Adler mit befiederten Füssen von Brehm. < *Oken's Isis*, Bd. xxiii, 1830, pp. 96–106.
Aquila fulva, *A. melanaetos*, *A. chrysaetos* "Brehm".

1830. VIGORS, N. A. Gampsonyx [swainsonii], eine neue Sippe der Falconiden. < *Oken's Isis*, Bd. xxiii, 1830, pp. 839, 840.
Aus d. *Zool. Journ.*, ii, 1825, p. 65.

1830. VIGORS, N. A. Nauclerus [riocourii], neue Sippe der Falconiden. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1042, 1043.
Uebers. d. *Zool. Journ.*, ii, 1825, p. 385.

1831. ANON. The Bald Eagle [Haliaëtus leucocephalus]. < *D. J. Browne's The Naturalist*, i, No. xii, Dec., 1831, pp. 359–367.
Popular account, chiefly compiled from Wilson.

1831. AUDUBON, J. J. An account of the habits of the American Goshawk (Falco palumbarius, Wils.). < *Edinb. Journ. Nat. Geogr. Sci.*, iii, 1831, pp. 145–147.
Not seen.

1831. BENNETT, [E. T.] [Remarks on two specimens of Polyborus hypoleucus which had been living in the Society's Garden.] < *Philos. Mag.*, ix, 1831, pp. 63, 64.
From *P. Z. S.*, Dec. 14, 1830, p. 13.

1831. Blackwall, J. On an undescribed Bird of the Family Falconidæ [Gampsonyx holmii]. < *Philos. Mag.*, x, 1831, pp. 264, 265.

1831. Hoy, J. D. Peregrine Falcon. < *Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 146, 147.
Falco peregrinus at Thetford, England.

1832. [Fries, B. F.] Om Jagt-Falken [F. gyrfalco]. Med planche. < *Tidsk. f. Jägare o. Naturf.*, i, 1832, pp. 352–363, med. kol. fig.
Not seen ?

1832. Hoy, J. D. The White-tailed Eagle [Haliaëtus albicilla] breeds in Captivity. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 278, 279.

1832. "J. M." Great Harpy Eagle. < *Loudon's Mag. Nat. Hist.*, v. 1832, p. 452.
One said to have been sent from Mobile, Florida (*i. e.*, Alabama), in Sept., 1828.

1832. R[afinesque], C. S. Description of a new Eagle from South America, Aquila dicronyx or Macarran Eagle. < *Atlantic Journ. and Friend of Knowl.*, i, No. 2, 1832, p. 63.
From Buenos Ayres; 3 feet long, expanse 9 feet, bill 4 inches, etc. Seen living in a collection. *Thrasaëti?*—or what?

1832. Söderberg, C. Ornithologiska Bidrag. < *Tidsk. f. Jägare o. Naturf.*, i, 1832, pp. 114–117, fig.
Descr. *Haliaëti albicillæ*, ♂ juv., cum fig.

1833. Holmstedt, J. Underrättelse om en tam Hafsörn [Haliaëtus albicilla]. < *Tidsk. f. Jägare o. Naturf.*, ii, 1833, p. 476.

1833. Hoy, J. D. Observations on the Iceland and Ger Falcons (Falco islandicus), tending to show that these Birds are of two distinct Species. < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 107–110.

1834. Bennett, [E. T.] [Ueber Polyborus? hypoleucus.] < *Oken's Isis*, Bd. xxvii, 1834, p. 815.
Auszug aus *Philos. Mag.*, ix, 1831, p. 63.

1834. Blackwall, J. Neue Falke aus Brasilien [Gampsonyx holmii]. < *Oken's Isis*, Bd. xxvii, 1834, p. 830.
Aus *Philos. Mag.*, Bd. ix, 1831, p. 264.

1834. "J. C." Of the Forked-tail Kite. < *Loudon's Mag. Nat. Hist.*, vii, 1834, p. 511.
In Essex County, England.

1834. Lafresnaye, F. de. Cymindis. Cymindis. Cuvier. C. bec en hameçon. C. hamatus. Illig., Temminck. (En livrée particulière avant celle de l'adulte.) < *Guér. Mag. de Zool.*, 4e année, 1834, classe ii, notice xx, pl. xx.

1834. Lafresnaye, F. de. Cymindis. Cymindis. Cuv. C. bec en croc. C. uncinatus. Tem. col. 103, 104 et 115 (En livrée jusqu'alors non décrite.) < *Guér. Mag. de Zool.*, 4e année, classe ii, notice xxi, pl. xxi.

1834. Lafresnaye, F. de. Cymindis. Cymindis. Cuvier. C. a manteau noir. Cuv.—Petit autour de Cayenne. Buff.—Falco Cayennensis. L. Gmel. (Dans la livrée qui précède celle de l'adulte, qui est la Buse mantelée, Falco pallatus, Pr. Max. Tem., col. 204; et le Cymindis busoïde, C. buteonides. Lesson, Traité, p. 55.) < *Guér. Mag. de Zool.*, 4e année, 1834, classe ii, notice xxii, pl. xxii.

1836. Anon. A Falco [Pandion] Haliætus L. shot near Oxford. < *Loudon's Mag. Nat. Hist.*, ix, 1836, p. 597.

1836. Dennis, G. E. The Osprey [Pandion haliaëtus]. < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 202, 203.
Anecdote, from *Morning Chronicle*, Dec. 1, 1835.

1836. Dugmore, H. [Note on Haliaëtus albicilla in confinement.] < *P. Z. S.*, iv, 1836, p. 49.

1836. Turner, H. Sea Eagle (Aquila [Haliaëtus] albicilla). < *Loudon's Mag. Nat. Hist.*, ix, 1836, p. 203.
From *Bury and Suffolk Herald*, Dec. 16, 1835.

1837. Brehm, C. L. Ueber das Betragen der männlichen Raubvögel gegen ihr brütendes Weibschen und die Jungen. < *Oken's Isis*, Bd. xxx, 1837, pp. 367–374.
Versammlung der Naturforscher und Aerzte zu Jena am 18. September 1836.

1837. Hamilton, H. [Letter announcing a donation of a Chilian Eagle.] < *P. Z. S.*, v, 1837, p. 67.

1837. Yarrell, W. [Exhibition of a Quill, filled with a species of Pediculus, from the wing of a Harpy Eagle (Thrasaëtus harpya).] < *P. Z. S.*, v, 1837, p. 127.

1838. Hancock, J. Occurrence of Falco Islandicus in England. < *Annals of Nat. Hist.*, ii, 1838, p. 159.

1838. Hancock, J. Remarks on the Greenland and Iceland Falcons, showing that they are distinct Species. < *Annals of Nat. Hist.*, ii, 1838, pp. 241–250, pl. x.
Carefully distinguishing the two. This article is usually referred to with much respect for its accuracy.

1838. Robertson, C. [Letter on the capture of a Peregrine Falcon at sea.] < *P. Z. S.*, vi, 1838, p. 77.

1838. Thompson, W. Golden and Sea Eagle, Aquila chrysaëtos and A. [Haliaëtus] albicilla [in Ireland]. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, p. 164.

1838. Thompson, W. Bald Eagle, Haliaëtus leucocephalus, Savig. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 164, 165.
Note of habits.

1838. Townsend, T. Capture of the White-tailed Eagle, (Falco albicilla: Penn. Mont. Haliaetus albicilla, Selby), on the Suffolk Coast, February 22nd, 1838. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 292, 293.

1839. Dugmore, H. Capture of an Eagle [Haliaëtus albicilla] at Swaffham. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, p. 198.

1839. Hancock, J. Remarks on the Greenland and Iceland Falcons. < *Rep. Brit. Assoc. Adv. Sci. for* 1838, vii, 1839 (*Misc. Comm.*), p. 106.

1839. Lafresnaye, [F.] de. Nouvelle classification des oiseaux de proie ou rapaces. < *Revue Zoologique*, ii, 1839, pp. 193–196.
Ire fam. *Vulturidæ;* 1re sousfam. *Didinæ*, 2e *Cathartinæ*, 3e *Vulturinæ*, 4e *Gypaetinæ;* IIe fam. *Falconidæ*, avec 7 sousfamilles; IIIe fam. *Gypoaeranidæ.*

1839. Lesson, R. P. Tableau de la famille des oiseaux Accipitres (Raptores). < *Revue Zoologique*, ii, 1839, pp. 132, 133.
Ire sect., *Diurnes*, 4 fam.; IIe sect., *Nocturnes*, 1 fam.

1839. Weissenborn, W. Curious capture of a White-headed Eagle [Haliaëtus albicilla]. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, pp. 197, 198.

1839. Wiegmann, A. F. A. Ueber den Seeadler (Falco [Haliaëtus] albicilla). < *Preuss. Provinziabl.*, xxii, 1839, pp. 525–536.
Mir nicht zugänglich.

1841. Belany, J. C. A | Treatise | upon | Falconry. | In two parts. | By | James Cockburn Belany. | [Quotations, 7 lines.] | Berwick-upon-Tweed:—printed for the author. | 1841. 1 vol. 8vo. pp. i–xii, 1–278, 1–6; frontisp.
Part First. Containing Observations upon the Nature, Antiquity, and History of Falconry, pp. 1–116.
Part Second. Containing Notices of the different Hawks used in British Hawking, the Proper Method of Keeping, Training, and Flying the Birds, the Apparatus belonging to the Art, &c., pp. 117–277.
Terms in Falconry, pp. 1–6.

1841. Jameson, R. On the Affinities of the Falconidæ. < *Calcutta Journ. Nat. Hist.*, i, 1841, pp. 307–324. (Auch in d. *Isis*, 1843, pp. 810–812.)
Not seen.

1841. SCHLEGEL, H. Abhandlungen | aus dem | Gebiete | der Zoologie und Vergleichenden Anatomie, | von | H. Schlegel. | — | 1 Heft. | — | Leiden, | A. Arnz & Comp. | 1841. | Zu beziehen durch alle solide Buchhandlungen des In- und Auslandes. 1 vol. 4to. 2 p. ll., pp. 1–44, 1–12, 1–20, 1 l., pll. i–xv.

This consists of 3 separately paged articles, the first two upon *Cetacea*, the third (perhaps better citable separately) as follows: III. Beschreibung einiger neuen grossen Edelfalken, aus Europa und dem Nordlichen Afrika, pp. 1–20, pll. x–xv.—*Falco feldeggii*, p. 3, pll. x, xi, *F. tanypterus*, Licht., p. 8, pll. xii, xiii.—Fortzetzung: *F. jugger*, p. 13, pl. xv. Folgt schliesslich eine Uebersicht aller bekannten grossen Edelfalken: A, Langswänzige Arten, 9 spp.—1. *F. candicans*, Gm.; 1*a*, *F. c. islandicus*; 2, *F. gyrfalco*; 3, *F. subniger*, Gr.; 4, *F. mexicanus*, Licht. M. B., p. 15, sp. n.; 5, *F. hypoleucos*, Gould; 6, *F. tanypterus*, Licht.; 7, *F. lanarius*; 7*a*, *F. l. alphanet*, pl. xiv; 7*b*, *F. l. cervicalis*, Licht. M. B., p. 17; 8, *F. saeer*; 9, *F. jugger*. B, Kurzschwänzige Arten.—1, *F. communis*; 1*a*, *F. c. americanus*, p. 19; 1*b*, *F. c. australis*, p. 19; 1*c*, *F. c. indicus*; 1*d*, *F. c. minor*; 2, *F. peregrinoides*.

1841. YARRELL, [W.] [Eine Schwungfeder vom Harpy-Eagle (Harpyia destructor).] < *Oken's Isis*, Bd. xxxiv, 1841, p. 942, 943.

Proc. Zool. Soc. Lond., Nov. 14, 1837, p. 127.

1842. HALDEMAN, S. S. [Proposed Changes of Nomenclature of certain Genera.] < *Proc. Acad. Nat. Sci. Phila.*, i, 1842, pp. 187, 188.

In ornithology, one only—*Anopaia*, p. 188, g. n. = *Harpyia*, Cuv., preoccupied.

1842. LAFRESNAYE, [F.] DE. Description d'un nouveau genre d'Oiseau de proie [Harpyhaliætus]. < *Revue Zoologique*, v, 1842, p. 173.

1842. LESSON, [R. P.] Nouveau Genre d'Oiseau de proie [Carnifex]. < *Revue Zoologique*, v, 1842, pp. 378–380.

L'Écho du Monde Savant, 9e année, p. 1081.

Ce n'est qu' une synonyme de *Micrastur*.

1843. EDMONSTON, T., JR. Note on the capture of the Sea Eagle (Haliaëtos albicilla) in Shetland. < *Zoologist*, i, 1843, pp. 36–39.

1843. HEPPENSTALL, J. The Osprey, (Pandion Haliaëtos) [near Sheffield]. < *Zoologist*, i, 1843, pp. 14, 15.

1843. JAMESON, R. Ueber die Verwandtschaften der Falconiden. < *Oken's Isis*, Bd. xxxvi, 1843, pp. 810–812.

Calcutta Journ. Nat. Hist., 1841, p. 307.

1844. FRASER, L. [Description of three New Species of Birds.] < *P. Z. S.*, Feb. 27, 1844, pp. 37, 38.

Among them "*Lagopus*" *ferrugineus*, p. 37 = *Archibuteo ferrugineus* (Licht.) from Mexico. Very curiously, the two authors here concerned independently selected the same name for the species. Lichtenstein has priority, having described his bird as *Falco* (*Buteo*) *ferrugineus* from California in 1839 (*Abhandl. Berlin. Akad. aus d. Jahre* 1838, p. 428.)

1844. FRASER, L. [On three lately new Species of Birds.] < *Ann. Mag. Nat. Hist.*, xiv, 1844, pp. 452, 453.

Lagopus ferrugineus, *Psittacus Timneh*, *Plyctolophus citrino-cristatus*. From *P. Z. S.*, Feb. 27, 1844, pp. 37, 38, *q. v.*

1844. GERBE, Z. Note sur un OEuf d'Aigle, recueilli dans le département de l'Aube et attribué avec doute à l'Aigle royal (Aquila chrysaetos). < *Revue Zoologique*, vii, 1844, pp. 440, 441.

1844. GRAY, G. R. [List of Birds in the British Museum. Part I.—Raptores. London: 1844.]

This is the date of the orig. ed., the title of which I cannot give, having yet to see a copy. There is a 2d ed., 1848, *q. v.*

1844. HANCOCK, J. Bemerkungen über den Unterschied des grön- und isländischen Falken. < *Oken's Isis*, Bd. xxxvii, 1844, pp. 668–671.

Ann. Nat. Hist., Bd. ii, No. x, 1838, pp. 241–250, *q. v.*

1844. HARDY, J. Quelques observations sur le Faucon pélerin, Falco peregrinus, Linn., faites dans l'arrondissement de Dieppe. < *Revue Zoologique*, vii, 1844, pp. 289–291.

1844. Harris, E. [Exhibition of a specimen of Cymindis hamatus from Florida.] < *Proc. Acad. Nat. Sci. Phila.*, ii, 1844, p. 65.

1844. Mansell, T. Occurrence of the Osprey [Pandion haliaëtus] near Farnham. < *Zoologist*, ii, 1844, p. 443.

1844. Newton, A. Note on the occurrence of the Sea Eagle [Haliaëtus albicilla] at Elden, near Thetford. < *Zoologist*, ii, 1844, p. 443.

1844. Norman, G. Note on the occurrence of the Rough-legged Buzzard [Archibuteo lagopus] at Hull. < *Zoologist*, ii, 1844, p. 491.

1845. Barlow, J. W. Occurrence of the Golden Eagle [Aquila chrysaëtus] in Cheshire. < *Zoologist*, iii, 1845, p. 1022.

1845. Bold, T. J. Occurrence of the Iceland Falcon [Falco islandicus] and Rough-legged Buzzard [Archibuteo lagopus] in Northumberland. < *Zoologist*, iii, 1845, p. 935.

With quotation of more detailed statements from *Morning Chronicle*, Feb. 6, 1845.

1845. Des Murs, O. Notice sur le genre Aigle Aquila. < *Revue Zoologique*, viii, 1845, pp. 271–274.

1845. Editorial. Falco islandicus [shot near the North Tyne]. < *Ann. Mag. Nat. Hist.*, xv, 1845, pp. 213, 214.

1845. Gurney, J. H. The supposed Chaunting Falcon [= Circus cyaneus]. < *Zoologist*, iii, 1845, p. 1022.

1845. Kaup, J. J. Ueber Falken. Mit besonderer Berücksichtigung der im Museum der Senckenbergischen naturforschenden Gesellschaft aufgestellten Arten. < *Mus. Senckenb.*, Bd. iii, Heft iii, 1845, pp. 229–262.

This article, which I have not seen, appears to be the first of several by this author on the same subject; it is noticed in *Isis*, 1846, pp. 315, 316, and may be regarded as the forerunner of the ,, Monographien der Genera der Falconidæ " in *Isis*, 1847, pp. 39–80, 83–121, 161–212, 241–283, 325–386, 954, 955; 1848, pp. 772–774; "Monograph of the *Falconidæ*" in *Jard. Contr. Orn.*, 1849, pp. 68–121; 1850, pp. 51–80; and ,, Corrigirte Uebersicht der *Falconidæ*," in *Arch. f. Naturg.*, 1850, (i), pp. 27–41; *qq. vv.*—In the course of these several publications many new names are proposed, conferring some vitality upon a set of papers which would otherwise be only consulted now from motives of curiosity by one desiring to know to what lengths the quinarian craze may carry its victims. I give these new names, or many of them, under head of the *Isis* article, 1847–48, *q. v.* See also same author at 1849–50, and 1850.

1845. Lafresnaye, [F.] de. Sur le Falco isidori, Desmurs; Revue Zool. 1845, p. 175. < *Revue Zoologique*, viii, 1845, pp. 209–211.

1845. Robertson, C. [Ueber Falco peregrinus.] < *Oken's Isis*, xxxviii, 1845, p. 374.

Proc. Zool. Soc. Lond., vi, 1838, p. 77.

1845. Ross, F. W. L. Occurrence of the Osprey [Pandion haliaëtus] in Devonshire. < *Zoologist*, iii, 1845, p. 1190.

1845. Sladen, E. Supposed occurrence of the Chanting Falcon ["Falco musicus"—*i. e.*, Circus cyaneus] in Suffolk. < *Zoologist*, iii, 1845, pp. 935, 936.

From *Kentish Gazette*, Mar. 18, 1845.

1846. Anon. Ueber Falken mit besondere Berichtigung der im Museum der senkenbergischen naturforschenden Gesellschaft aufgestellten Arten von Dr. Kaup, Inpector des zoologischen Museums zu Darmstadt. (Museum senkenbergianum. III.) 1845. 4. 231–262. < *Oken's Isis*, Bd. xxxix, 1846, pp. 315, 316.

1846. Hallowell, E. On the Anatomy [Osteology] of Harpyia destructor, Cuv., or Harpy Eagle of South America. < *Proc. Acad. Nat. Sci. Phila.*, iii, 1846, pp. 84–88.

1846. Lafresnaye, F. de. Mélanges ornithologiques. < *Revue Zoologique*, ix, 1846, pp. 124–133.

Sur les genres *Aviceda* (Swainson), *Lophotes* (Lesson), *Lépidogenys* (Gould), et sur deux nouvelles espèces du genre *Aviceda*; *A. verreauxii*, p. 130; *A. butéoïdes*, p. 133.

1846. THIENEMANN, F. A. L. Kritische Revision der europäischen Jagdfalken. < *Rhea*, Heft i, 1846, pp. 44–98, pll. i, ii.

„Vortreffliche, die reiche Literatur des Gegenstandes kritisch bewältegende Arbeit."—1, *Falco gyrfalco*, Alb. Mag., p. 50. 2, *F. cyanopus*, Gesn., p. 62, pll. 3, *F. rubeus* [sic], Alb. Mag., p. 72. 4. *F. gentilis*, p. 77.—*F. subbuteo*, p. 87; *F. æsalon*, p. 89; *F. sacer*, p. 91.—A. *F. sacer*. B. *F. montanarius*. C. *Falcones lanarii.*

1846. TYZENHAUZ, C. Remarques sur les Aigles d'Europe. < *Revue Zoologique*, ix, 1846, pp. 322–326.

7 espèces, des genres *Aquila* et *Haliaëtus.*

1846. WOLLEY, J. Occurrence of the Rough-legged Buzzard [Archibuteo lagopus] in Nottinghamshire and Derbyshire. < *Zoologist*, iv, 1846, p. 1247.

1847. ANON. Occurrence of the Golden Eagle [Aquila chrsyaëtus] near Hungerford. < *Zoologist*, v, 1847, p. 1695.

1847. CASSIN, J. Description of a new rapacious Bird [Cymindis wilsonii] in the Museum of the Academy of Natural Sciences of Philadelphia. < *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, pp. 199, 200.

1847. CASSIN, J. Description of a new rapacious Bird in the Museum of the Academy of Natural Sciences of Philadelphia. < *Am. Journ. Sci.*, iv, 1847, pp. 285, 286.

Cymindis wilsonii; from *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, p. 199.

1847. CASSIN, J. Description of a new rapacious Bird in the Museum of the Academy of Natural Sciences of Philadelphia. < *Ann. Mag. Nat. Hist.*, xx, 1847, p. 356.

Cymindis wilsonii; from *Am. Journ. Sci.*, Sept., 1847, p. 285.

1847. CASSIN, J. Description of a new rapacious Bird in the Museum of the Academy of Natural Sciences of Philadelphia. < *Journ. Acad. Nat. Sci. Phila.*, i, pt. i, Dec., 1847, pp. 21–23, pl. vii.

Cymnidis wilsonii, figured. Cf. *Proc. Acad. Nat. Sci. Phila.*, Apr., 1847, p. 199.

1847. DES MURS, O. Notice sur le Falco (Spizaetus) ornatus Daudin, et l'Harpya (Spiz) braccata de Spix. < *Revue Zoologique*, x, 1847, pp. 315–326.

S. spixii, sp. n. propos., p. 325.

1847–48. KAUP, J. J. Monographien der Genera der Falconidae. < *Oken's Isis*, Bd. xl, 1847, pp. 39–80, pll. i, ii; pp. 83–121, 161–212, 241–283, 325–386, 954, 955; xli, 1848, pp. 772–774.

Subfam. I. *Falconinæ—Hierax, Tinnunculus, Harpagus, Falco, Jeracidea.* II. *Milvinae—Ictinia, Nauclerus, Circus, Elanus, Milvus.* III. *Accipitrinæ—Spizaetus, Nisus, Geranospiza, Aster, Asturina.* IV. *Aquilinæ—Aquila, Helotarsus, Circaëtus, Pandion, Haliaetus.* V. *Buteoninæ—Buteo, Pernis, Polyborus, Rostrhamus, Ibicter* [sic].

Polihierax, p. 47; *Poecilornis* (Kaup, 1843), p. 49; *Tichornis* (Kaup, 1843), p. 51; *Aesalon*, p. 59; *Gennaia* (Kaup, 1845), p. 69; *Poecilopteryx*, p. 86; *Glaucopteryx*, p. 99; *Spilocircus*, p. 101; *Spizacircus*, p. 103; *Lophoictinia* (1845), p. 113; *Hydroictinia*, p. 114; *Gypoictinia*, p. 114; *Lophaetus*, p. 165; *Spizaetus*, p. 165; *Pternura*, p. 168; *Hieraspiza*, p. 169; *Tachyspiza*, p. 172; *Scelospiza*, p. 173; *Urospiza*, p. 180; *Geranospiza* (1846), p. 183; *Lophospiza* (1843), p. 187; *Leucospiza* (1843), p. 197; *Leucopternis*, p. 210; *Hieraetus*, p. 243; *Pteroaetus*, p. 245; *Onychaetus* (1843), p. 245; *Uroaetus*, p. 252; *Circaetus*, 256; *Ictinoaetus* (1843), p. 275; *Heteroaetus*, p. 278; *Pontaetus*, p. 279; *Thalassaetus*, p. 283; *Tachytriorchis*, p. 328; *Poecilopternis*, p. 329; *Ichthyoborus*, p. 333; *Regerhinus*, p. 344; *Odontriorchis*, p. 346; *Aetotriorchis*, p. 358, are some of Kaup's new or lately new genera. See same author at 1845, 1849–50, and 1850.

Nachträge und kritische Uebersichten der vorhandenen Synopsen, pp. 360–363, über *Falco concolor* und *F. eleonorae.*—Systemat. Uebersicht, pp. 363–374. Uebersicht der Arten Azara's, pp. 374–376. Revision der von Vieillot in der *Ency. Méth.* aufgezahlten *Falconidæ*, pp. 376–383. Erklärung der Abbild., pp. 384–386. Nachträge und Correctionen, pp. 954, 955. Zusätze (1848), pp. 772–774.

1847. TSCHUDI, J. J. v. The Gyr-Falcon [sic; i. e., Milvago chimango]. < *Zoologist*, v, 1847, p. 1806.

From "Travels in Peru". Cf. *Zool.*, 2018.

1848. BOWLES, *Admiral.* [Letter from, announcing the presentation of three living specimens of Haliaëtus aguia (Temm.), and a male Condor, by Rear-Admiral Sir George Seymour.] < *P. Z. S.*, xvi, 1848, p. 112.

1848. CARLETON, J. W. Natural History of the Hawk Tribe. Illustrated by A. Henning. London: D. Bogue. 1848. 18mo. pp. 112.

Not seen—title from Carus and Engelmann.

1848. DES MURS, O. Complément de la notice sur la spécification distincte du Spizaetus braccatus (Harpya braccata, Spix) d'avec le Spizaetus ornatus (Falco ornatus, Daudin) et le Spizaetus tyrannus (Falco tyrannus, Temm.). <*Revue Zoologique*, xi, 1848, pp. 35–39.

1848. [GRAY, G. R.] List | of the | Specimens of Birds | in | the collection | of the | British Museum. | [By George Robert Gray.] | — | Second edition. | — | Part I.—Accipitres. | Printed by order of the Trustees. | London: 1848. 1 vol. sm. 12mo. pp. i–viii, 1–120.

Orig. ed. 1844. This is the list of the *Accipitres*, 2d ed., giving an extensive synonymy of each species and genus, and the localities whence were derived the specimens in the British Museum; being one of the several partial lists, or lists of particular groups, which preceded and led up to the same author's famous *Hand List.*

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1849. DUFF, J. Occurrence of the Osprey (Falco [Pandion] Haliæetus) near Bishop's Auckland. <*Zoologist*, vii, 1849, p. 2452.

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1849. HULKE, J. W. White-tailed Eagle [Haliaëtus albicilla] at Deal. <*Zoologist*, vii, 1849, p. 2409.

1849–50. KAUP, [J. J.] Monograph of the Falconidæ, Systematically arranged by Dr. T. T. [sic] Kaup. <*Jard. Contrib. Ornith.*, 1849, pp. 68–121; 1850, pp. 51–80.

"Dr. Kaup has sent us his Monograph of the Falconidæ, translated by himself from that Journal [*Oken's Isis*] of 1847, as improved in 1848."—*Editor.* The first article is occupied with classificatory speculations of the most general character, relating not only to the present subject but to birds in general; in the second portion of the paper the family is systematically treated on the quinarian plan, and elaborated down to species. There is nothing to show whether various of the author's generic terms are really new in this paper, or whether they had already been in print in the *Isis* or elsewhere. The latter is doubtless the case.—See this author at 1845, 1849–50, and 1850.

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Micrastur guerilla, heretofore described, here figured, pl. xl.

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Verzeichniss nebst Synonymik von 191 Arten—39 *Falconinæ*, 28 *Milvinæ*, 51 *Accipitrinæ*, 40 *Aquilinæ*, 33 *Buteoninæ*. *Cypselopteryx*, p. 31; *Pterocircus*, p. 32; *Geranopus*, p. 35, und vielleicht andere genn. nn. Vergl. 1845, 1847–48, 1849–50, KAUP, J. J.

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1850. NEWMAN, E. Occurrence of the Osprey (Falco [Pandion] haliæëtos) near Colchester. < *Zoologist*, viii, 1850, p. 2764.

1850. NEWMAN, E. Golden Eagle [Aquila chrysaëtus, in Scotland]. < *Zoologist*, viii, 1850, p. 2764.

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Very entertaining narrative of his sport in India, well written, and of excellent authority. The writer is "convinced that the race of round or short-winged hawks has been unduly depreciated, and that by selecting good birds and by careful training, excellent sport is to be got out of them"—as one would readily believe, from seeing Wolf's spirited "Goshawk and Gazelle", or reading the author's "A Day with the Shahbaz." Cf. *Zool.*, 1852, pp. 3569–3576.

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25 spp. *Buteo calurus*, *B. elegans*, p. 281; *B. oxypterus*, p. 282, spp. nn. See 1853, Cassin, J.

1855. Fritsch, A. Bemerkungen über einige Falkenarten. < *J. f. O.*, iii, 1855, pp. 266–270.

F. laniarius, *F. communis*, *F. peregrinoides*, *F. eleonoræ*, *F. concolor*, *F. ardesiacus*.

1855. Kjärbölling, [N.] Ueber die hochnordischen Edelfalken. < *Naumannia*, v, 1855, pp. 489–493.

Falco groenlandicus, *F. islandicus*, *F. gyrfalco*.

1855. Kneeland, S., Jr. [Remarks on exhibition of a Golden or Ring-tailed Eagle (Aquila chrysaëtus).] < *Proc. Bost. Soc. Nat. Hist.*, v, 1855, pp. 272, 273.

1855. PÄSSLER, W. Bemerkenswerthes in Bezug auf die Färbung der Raubvögel-Eier. < *J. f. O.*, iii, 1855, pp. 209–214.

„1) Ein und dasselbe Weibchen legt stets ahnliche, ja, ich möchte sagen, gleich gefärbte Eier; und 2) Abänderungen, welche man bei einer Art findet, trifft man auch bei anderen Arten."

1855. SCHLEGEL, H. [An der Frage über die Falken, besonders die Edelfalken.] < *Naumannia*, v, 1855, pp. 251–254.

„Das Verzeichniss aller mir bekannten Arten"—40 spp.

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An extensive but far from complete synonymy of 370 + 3 spp., not entirely free from inaccuracies, but prepared with great care, and of great practical utility. The list of works quoted in the introduction is a convenient index to research. No second volume has appeared.

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1856. BREHM, [C. L.] [Einige Wörte über die eigentlich europäischen Wanderfalken.] < *Naumannia*, vi, 1856, pp. 326–332.

I. Aechte Wanderfalken: 1. *F. peregrinus cornicum*, *F. per. abietinus*, *F. per. griseiventris*, *F. per. leucogenys*, p. 227; *F. per. orientalis*, subsp. nn. 2. *F. barbarus*. II. Unächte Wanderfalken: 1. *F. cervicalis*, Mus. Berol., *F. biarmicus* Nob., p. 330; *F. tanypterus* Brm., p. 331.

1856. BREWER, T. M. [Observations on the California Red-tailed Hawk (Buteo montanus).] < *Proc. Bost. Soc. Nat. Hist.*, v, 1856, pp. 385, 386.

1856. COOKE, M. C. Occurrence of the Peregrine Falcon [Falco communis] near Norwich. < *Zoologist*, xiv, 1856, p. 5058.

1856–57. MÜLLER, J. W. v. Der Jagdfalke und die Falkenbaize. < *J. f. O.*, iv, 1856, pp. 497–502; v, 1857, pp. 169–174.

I. *F. candicans*. II. Die Falkenbaize.

1856. STEVENSON, H. Occurrence of the Sea Eagle (Haliaëtus albicilla) in Norfolk. < *Zoologist*, xiv, 1856, p. 4946.

1856. URBAN, W. S. M. D'. Occurrence of the Whitetailed Eagle (Falco [Haliaëtus] albicilla) in Devonshire. < *Zoologist*, xiv, 1856, p. 5096.

1856. VERREAUX, J. Note sur un Nouveau Genre [Urubitornis, de la Nouvelle Grenade] des Oiseaux de Proie. < *P. Z. S.*, xxiv, 1856, pp. 145, 146.

1857. BARRON, C. Occurrence of the Whitetailed Eagle [Haliaëtus albicilla] near Haslar. < *Zoologist*, xv, 1857, p. 5426.

1857. BLASIUS, J. H. Aphorismen über Falken. < *Naumannia*, vii, 1857, pp. 223–264.

Sehr vollständig.

1857. BLASIUS, J. H. Ueber die Wiehen Europa's. < *Naumannia*, vii, 1857, pp. 307–324.

Behandelt *Cirus aëruginosus*, *C. cyaneus*, *C. pallidus*, *C. cineraceus*—4 Arten.

1857. CASSIN, J. Notes on the North American species of Archibuteo and Lanius, and description of a new species of Toucan, of the genus Selenidera, Gould. < *Proc. Acad. Nat. Sci. Phila.*, ix, 1855, pp. 211–214.

The author recognizes 3 species of the genus *Archibuteo*, one of them being the previously little-known *A. ferrugineus* (Licht.).

1857. ERHARD, *Dr.* [Aquila fulva beim Horste, u. s. w.] < *Naumannia*, vii, 1857, Hft. i, pp. 87, 89.

1857. G[RAYSON], A. J. The white breasted Squirrel Hawk.—(Buteo californica [sp. n.].) < *Hutchings's California Magazine*, Mar., 1857, pp. 393–396, fig.

Described as a new species under the above name. It is the *Archibuteo ferrugineus* (Licht.) or the *Lagopus ferrugineus*, Fraser. The article is mainly devoted to the habits of the bird, but also gives a recognizable description and figure.

1857. Middendorff, [A. T.] v. [Falco peregrinus auf ebener Erde horstend.] < *Naumannia,* vii, Heft ii, 1857, p. 181.

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Nicht mir selbst zugänglich.—„ In instructives und anziehender Weise schildert A. Brehm ‚die Geieradler und ihr Leben'; . . . Die Subspecies werden gut beschrieben." (*Hartl.*)

1858. Cassin, J. [Occurrence of Falco polyagrus at Rock Island, Illinois, east of the Mississippi River.] < *Proc. Acad. Nat. Sci. Phila.,* x, 1858, p. 1.

1858. Hocker, J. Ueber den Standort des Horstes der Kornweihe (Circus cyaneus). < *Naumannia,* viii, 1858, pp. 505, 506.

1858. Jäger, C. Aquila [Haliaëtus] albicilla in der Wetterau. < *Naumannia,* viii, 1858, pp. 507, 508.

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Pl. i, *Aquila chrysaëtos,* Pall.

1858. Richardson, J. Occurrence of the Peregrine Falcon [Falco peregrinus] in Yorkshire. < *Zoologist,* xvi, 1858, p. 6058.

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Nicht mir selbst zugänglich.

1858. Sclater, P. L. On some New or little-known Species of Accipitres, in the collection of the Norwich Museum. < *P. Z. S.,* xxvi, 1858, pp. 128–133.
Buteo zonocercus, p. 130; *Syrnium albitarse,* Gray, p. 131; *Scops usta,* p. 132, spp. nn. Figured, *Tr. Z. S.,* 1859, *q. v.* Lists of spp. of *Urubitinga, Syrnium,* and *Scops.*

1858. Sclater, P. L. Note on the Variation of the Form of the Upper Mandible in a Rapacious Bird [Urubitinga unicincta]. < *P. Z. S.,* xxvi, 1858, p. 150, woodcc.

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1858. Sclater, P. L. On the Variation of the Form of the Upper Mandible in a Rapacious Bird. < *Ann. Mag. Nat. Hist.,* 3d ser., ii, 1858, pp. 163, figg. 2.
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1859. Crewe, H. R. Occurrence of the Peregrine Falcon (Falco peregrinus) in Derbyshire. < *Zoologist,* xvii, 1859, p. 6779.

1859. Gould, J. [Exhibition of all the known Species of the genus Elanus, with description of a New Species (E. hypoleucus).] < *P. Z. S.,* xxvii, 1859, pp. 126, 127.

1859. Hincks, W. The Family of Falconidæ. < *Canad. Journ.,* iv, Nov., 1859, pp. 443–449.
15 Canadian spp.

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Descr. orig. *P. Z. S.,* 1858, pp. 128–133, the species being here figured in colors.—Pl. 59, *Buteo zonocercus;* pl. 60, *Syrnium albitarse;* pl. 61, *Scops usta.*

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1860. GLOGER, C. W. L. Der Seeadler [Haliaëtus albicilla] auf dem Wasser. < *J. f. O.*, viii, 1860, pp. 470, 471.
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1860. SCLATER, P. L. On the Eggs of Two Raptorial Birds from the Falkland Islands. < *Ibis*, ii, 1860, pp. 24–28, pl. i.
Pl. i, fig. 1, *Milvago australis;* fig. 2, *Cathartes* sp., wrongly identified as *Milvago australis;* fig. 3, *Buteo erythronotus*.

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Confirming J. Hancock's determination.

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Extended description and criticism of the various current nominal species, which are to be reduced to one or the other of these two. But the "*Buteo harlani* Aud.?" of this paper is not of Aud., being *B. swainsoni* Bp. Cf. *Ibis*, 1862, pp. 184, 185.

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1862. BLASIUS, J. H. Über die nordischen Jagdfalken [Hierofalco]. < *J. f. O.*, x, 1862, pp. 43–59.
An elaborate examination of the question, with extended descriptions of various forms.

1862. CHENU, J. C., *and* DES MURS, O. La | Fauconnerie | Ancienne et Moderne | par | J. C. Chenu et O. Des Murs | — | Supplément au tome deuxième | des | Leçons Élémentaires sur l'Histoire Naturelle des Oiseaux | [Dessin.] | Paris | Librairie L. Hachette et Cie | 77, Rue Saint-Germain, 77 | — | 1862. 1 vol. in-12°. faux-titre, titre, et pp. 1–176, figg. 1–45, + 7; exemplaires en couleur ou en noir.

Aperçu historique, p. 1—Description des Faucons, p. 47, figg. 7–21—Éducation des Oiseaux de vol, p. 79—Observations sur le vol des Oiseaux, p. 131—Liste alphabétique des termes de Fauconnerie, p. 151.

1862. PELZELN, A. v. [On the habitat of Accipiter pectoralis (Brazil).] < *Ibis*, iv, 1862, p. 194.

1862–63. PELZELN, A. v. Uebersicht der Geier und Falken der kaislerlichen ornithologischen Sammlung. < *Verh.* (*Abh.*) *k.-k. zool.-bot. Ges. Wien*, xii, 1862, Abth. ii, pp. 123–192; xiii, 1863, pp. 585–636.

Enthaltend das systematische Verzeichniss der in der Kaiserl. Ornith. Samml. aufbewahrten *Vulturidæ*, *Cathartidæ* und *Falconidæ*. Der Uebersicht ist im Allgemeinen das von G. R. Gray (in: *G. of B.* und *List of G. of B.*, 1855) System zu Grunde gelegt, ohne jedoch einzelne Abänderungen auszuschliessen. Am Schlusse hat der Verf. die reichen und werthvollen von Natterer während seiner Reise gemachten und in dem Cataloge (msc.) seiner brasilischen Sammlung enthaltenen Notizen über die von ihm gesammelten Arten der hier besprochenen Gruppen zusammengestellt.—*Handscriftliche Notizen* von J. Natterer, pp. 171–191 (1862), 631–636 (1863).—Cf. *Ibis*, 1864, p. 123.

1862. ROBERTS, A. Occurrence of the Golden Eagle [Aquila chrysaëtus] near Driffield. < *Zoologist*, xx, 1862, p. 7880.

1862. SAVILLE, S. P. Occurrence of the Peregrine Falcon [Falco peregrinus] in Cambridgeshire. < *Zoologist*, xx, 1862, p. 7843.

1862. SCHLEGEL, H. Falcones < *Mus. Hist. Nat. Pays-Bas*, 1re livr. Août 1862, pp. 1–36.

Treats of 35 spp. and several subspp., all referred to the genus *Falco*; constituting a synonymatic and descriptive catalogue of the 337 specimens of *Falconinæ* in the Leyden Museum.

1862. SCHLEGEL, H. Aquilae < *Mus. Hist. Nat. Pays-Bas*, 1e livr., Sept., 1862, pp. 1–24.

Treats of 20 species of "Eagles", namely: 8 referred to the genus *Aquila*, 11 to *Haliaëtus*, and 1 to *Pandion*; representing a synonymatic descriptive list of the 182 specimens contained in the Leyden Museum.

1862. SCHLEGEL, H. Astures < *Mus. Hist. Nat. Pays-Bas*, 1e livr., Sept., 1862, pp. 1–58.

The "*Astures*" of this author include *Gypogeranus*, which remarkable form is ranged in the genus *Astur* itself!—a piece of "conservatism" so extreme as to be justly reprehensible, and to tend to bring the author's faculty of discernment into discredit—unless, indeed, he intended by such course to satirize some of his contemporaries. Fifty-five species are treated, of the three genera *Spizaëtus* (9), *Astur* (18), and *Nisus* (27).—*Nisus verreauxii*, p. 37, sp. n.

1862. SCHLEGEL, H. Asturinae < *Mus. Hist. Nat. Pays-Bas*, 1e livr., Sept., 1862, pp. 1–14.

Treating of 15 spp. of one genus, *Asturina*, represented by 52 specimens in the Leyden Museum.

1862–63. SCHLEGEL, H. Buteones < *Mus. Hist. Nat. Pays-Bas*, 1e livr., Août 1862, pp. 1–4; 2e livr., 1863, pp. 5–30.

Whole article dated Aug., 1862, and pp. 1–4 pub. that year; pp. 5–30, in livr. 2, not pub. as a whole till 1863, though the loose signatures may have been out in 1862. The "*Buteones*", 31 in number, are referred to the 2 genera *Buteo* (23) and *Circaetus* (8). A descriptive and synonymatic list of 193 specimens in the Leyden Museum.—*Buteo cabanisii*, p. 11, sp. n.? *Circaetus bacha celebensis*, p. 27, sp. n.? The series of articles on the Raptores continues in the 2e livr., 1863; and there is a general review of the whole subject, of date 1873.

1862. SCLATER, P. L. Note on Falco circumcinctus [P. Z. S. 1851, 42], a rare Bird of Prey from South America. < *Ibis*, iv, 1862, pp. 23–25, pl. ii.

Cf. *Falco punctipennis*, Burm., *J. f. O.*, 1860, p. 242.

1863. ALLIS, T. H. The Osprey [Pandion haliaëtus] near Bury St. Edmunds. < *Zoologist*, xxi, 1863, pp. 8677, 8678.

1863. BAKER, J. Osprey [Pandion haliaëtus] in Cambridgeshire. < *Zoologist*, xxi, 1863, p. 8813.

1863. BAKER, J. Marsh [Circus æruginosus] and Montagu's [Circus cineraceus] Harriers in Norfolk. < *Zoologist*, xxi, 1863, p. 8765.

1863. Blake-Knox, H. Marsh Harrier [Circus æruginosus], Peregrine Falcon [F. peregrinus], Iceland Falcon [F. grœnlandicus, see Zool. 8678], &c., in Ireland. < *Zoologist*, xxi, 1863, p. 8523.

Notice, also, of *Falco æsalon* and *Alca alle*.

1863. Bodinus, *Dr.* [Tuberculose bei Raubvögeln, u. s. w.] < *Zool. Gart.*, iv, 1863, pp. 68–71.

1863. Boulton, W. W. The Roughlegged Buzzard (Falco [Archibuteo] lagopus) in Yorkshire. < *Zoologist*, xxi, 1863, p. 8441.

1863. Dutton, J. Hen Harrier (Falco [Circus] cyaneus) at Eastbourne. < *Zoologist*, xxi, 1863, p. 8484.

1863. Kent, R. The Roughlegged Buzzard (Falco [Archibuteo] lagopus) and Hen Harrier (Falco [Circus] cyaneus) at Ashburnham Park. < *Zoologist*, xxi, 1863, p. 8442.

1863. Harting, J. E. Peregrine Falcon (Falco peregrinus) at Haverfordwest. < *Zoologist*, xxi, 1863, p. 8523.

1863. Harting, J. E. The Osprey [Pandion haliaëtus] near Uxbridge. < *Zoologist*, xxi, 1863, p. 8813.

1863. Homeyer, A. v. Kampf eines Seeadlers [Haliaëtus albicilla] mit einem Fuchse. Mit Zusatz von Dr. Gloger. < *J. f. O.*, xi, 1863, pp. 155–159.

1863. Maximilian, Prinz von Wied. Ueber das vollkommene Gefieder des Morphnus guianensis. < *J. f. O.*, xi, 1863, pp. 1–3.

1863. Pelzeln, A. v. Ueber die Färbung des Morphnus guianensis (Daud.) und M. Harpyia (L.). < *J. f. O.*, xi, 1863, pp. 121–132.

1863. Rodd, E. H. Occurrence of the Osprey [Pandion haliaëtus] near Hayle. < *Zoologist*, xxi, 1863, p. 8841.

1863. Rodd, E. H. Marsh Harrier [Circus æruginosus] in the Scilly Isles. < *Zoologist*, xxi, 1863, p. 8841.

1863. Saville, S. P. Roughlegged Buzzard (Falco [Archibuteo] lagopus) in Cambridgeshire. < *Zoologist*, xxi, 1863, p. 8441.

1863. Saxby, H. L. Iceland Falcon (Falco islandicus) in Shetland. < *Zoologist*, xxi, 1863, p. 8484.

1863. Saxby, H. L. The Osprey [Pandion haliaëtus] in Shetland. < *Zoologist*, xxi, 1863, p. 8677.

1863. Schlegel, H. Milvi < *Mus. Hist. Nat. Pays-Bas*, 2e livr., Oct., 1862, pp. 1–12, (Pub. 1863.)

This monograph is dated Oct., 1862, and the sheet may have been out that year, but the livr. was not pub. as a whole until 1863.

Milvus (6), *Elanoïdes* (2), *Elanus* (6), *Ictinia* (2) = 16 spp., represented by 79 specimens, a list of which is given, with synonymy and description. *Elanus intermedius*, p. 7, sp. n.

1863. Schlegel, H. Pernes < *Mus. Hist. Nat. Pays-Bas*, 2e livr., Nov., 1862, pp. 1–10. (Pub. 1863.)

Memoir dated Nov., 1862, and the sheet may have been out that year; but this livraison not pub. as a whole until 1863. Treats of *Pernis* (2), *Baza* (4), *Macheirhamphus* (1), *Cymindis* (2) = 9 spp., represented in the Leyden Museum by 43 specimens.

1863 Schlegel, H. Polybori < *Mus. Hist. Nat. Pays-Bas*, 2e livr., Nov., 1862, pp. 1–10. (Pub. 1863.)

This memoir is dated Nov., 1862, and may have been out that year; but the livraison containing it was not pub. till 1863. Treats of 5 spp of *Polyborus* and 4 of *Ibicter* (sic), represented by 28 specimens in the Leyden Museum.

1863. SCHLEGEL, H. Vultures < *Mus. Hist. Nat. Pays-Bas,* 2e livr., Nov., 1862, pp. 1–12.

Article dated Nov., 1862, and may have been out that year, but the livr. not pub. till 1863.

The "Vultures" of the author, whose classificatory instincts are anachronistic, tending always to retrogression, include the very distinct group of *Cathartidæ* with the Old World Vulturines.—There are here treated 6 spp. of *Cathartidæ* in the single genus *Cathartes*, with 2 of *Neophron*, 6 (including several subspp.) of *Vultur*, and 1 (with a subsp.) of *Gypaëtus;* represented by 94 specimens in the Leyden Museum.

1863. SCHLEGEL, H. Circi < *Mus. Hist. Nat. Pays-Bas,* 2e livr., Dec., 1862, pp. 1–12. (Pub. 1863.)

The article is dated Dec., 1862, and the signature (13) may have been distributed that year; but the livr. was not pub. till 1863.

It treats of eleven spp. and one subsp. of the genus *Circus*, represented by 118 specimens in the Leyden Museum, being a synonymatic and descriptive list thereof.

1863. [SCHLEGEL, H.] Aves Rapaces. Résumé Général. 31 Décembre 1862. < *Mus. Hist. Nat. Pays-Bas,* 2e livr., 1863, 1 feuille.

A large loose folded sheet, not paged, issued with livr. 2e, giving a tabular view of the author's system of classification of the *Rapaces*, according to which the several articles are recommended to be bound, viz: *Oti* (No. 11), *Striges* (No. 12), *Falcones* (No. 2), *Circi* (No. 13), *Aquilæ* (No. 3), *Astures* (No. 4), *Asturinæ* (No. 5), *Buteones* (No. 6), *Milvi* (No. 7), *Pernes* (No. 8), *Polybori* (No. 9), *Vultures* (No. 10).—Also noting additions to the collection, bringing the total of species to 333, of specimens to 2,002.

1863. SCLATER, P. L. Note on the Occurrence of the European Sea-Eagle [Haliaëtus albicilla] in North America. < *P. Z. S.*, xxxi, 1863, pp. 251–253.

But cf. *P. Z. S.*, 1865, p. 731.

1863. STEVENSON, H. The Roughlegged Buzzard (Buteo [Archibuteo] lagopus) on the Norfolk Coast. < *Zoologist*, xxi, 1863, p. 8325.

1863. WHEELWRIGHT, H. The Norwegian Jer-Falcon (Falco Jer-falco norvegicus of Wooley, "rip-spenning," Lap., "jagt falk," Sw.). < *Zoologist*, xxi, 1863, pp. 8439–8441.

1863. WHEELWRIGHT, H. The Roughlegged Buzzard [Archibuteo lagopus]. < *Zoologist,* xxi, 1863, pp. 8441, 8442.

1864. ADOLPHI, R. [Haltung der Raubvögel.] < *Zool. Gart.*, v, 1864, p. 21.

1864. ALLEN, J. A. Notes on the Habits and Distribution of the Duck Hawk, or American Peregrine Falcon [Falco peregrinus], in the Breeding Season, and Description of the Eggs [from Mt. Tom, Mass.]. < *Proc. Essex Inst.*, iv, 1864, art. x, pp. 153–161.

1864. ANON. A Jerfalcon shot in the South of Scotland. < *Zoologist*, xxii, 1864, p. 8875.

1864. BLASIUS, R. Die Adler. (Beilage xi. zum Berichte über die xiv. Versamml. der Deutsch. Ornith. Gesellsch.) < *J. f. O.*, xi, 1863, besond. Beigabe, pp. 76–106. (Pub. 1864.)

Full descriptions, with extensive tables of measurement, of 7 spp.

1864. BLASIUS, J. H. Zur Unterscheidung des Dunenkleides der Raubvögel. < *J. f. O.*, xii, 1864, pp. 276–289.

a. Der untere Theil des Laufs ist mit Netztafeln besetzt, der obere befiedert (*Falco, Elanus, Pandion, Circaetos, Pernis*). b. Der Lauf ist bis zur Zehenwurzel befiedert (*Aquila, Archibuteo*). c. Die unteren Thiele des Laufs sind vorn mit umfassenden Quertafeln besetzt, die oberen vorn befiedert (*Buteo vulgaris, Haliaëtus, Milvus, Astur, Circus*). Many specific distinctions of European diurnal and nocturnal *Raptores* are also systematically drawn.

1864. BOULTON, W. W. Osprey [Pandion haliaëtus] near Beverley. < *Zoologist,* xxii, 1864, pp. 9207–9209.

1864. BOULTON, W. W. Peregrine Falcon [Falco peregrinus] at Flamborough. < *Zoologist,* xxii, 1864, p. 9209.

1864. DUTTON, J. Peregrine Falcons [Falco peregrinus] taken at Beachy Head and Seaford Cliffs. < *Zoologist,* xxii, 1864, p. 9209.

1864. Gunn, T. E. Whitetailed Eagle [Haliaëtus albicilla] near Wymondham. <*Zoologist*, xxii, 1864, p. 9019.

1864. Gurney, J. H. A | Descriptive Catalogue | of | the Raptorial Birds | in the | Norfolk and Norwich Museum, | compiled and arranged | by | John Henry Gurney. | — | Part One: | containing | SerpentarIIdæ, Polyboridæ, Vulturidæ. | — | London: | John Van Voorst, Paternoster Row. | Norwich: Matchett and Stevenson, Market-place. | 1864. 1 vol. roy. 8vo (4to by sigs.). pp. i–vi, 7–90.

Mr. Gurney's high name as an authority on Birds of Prey, and his accomplishments as a writer, render anything he has to say upon this subject important and interesting.

Lists of 157 specimens, as well as 30 species, are given, with very full particulars on geographical distribution, food, nidification, general habits, colors of soft parts, etc.—constituting a treatise, rather than a catalogue, of the highest authority. Cf. *Ibis*, 2d ser., i, 1865, p. 99.

1864. Hodgkinson, J. B. Osprey [Pandion haliaëtus] near Preston. <*Zoologist*, xxii, 1864, p. 8875.

1864. Homeyer, E. v. Raubvögelhorste [werden zu häufig von den verschiedensten Raubvögeln bewohnt]. <*J. f. O.*, xii, 1864, pp. 218, 219.

1864. Hussey, H. Eagles in the Highlands. <*Zoologist*, xxii, 1864, pp. 9206–9207.

1864. Lungershausen, L. [Haltung der kleineren Raubvögel.] <*Zool. Gart.*, v, 1864, pp. 265, 267.

1864. Newton, A. Ootheca Wolleyana: | An illustrated Catalogue | of | the collections of Birds' Eggs | formed by the late | John Wolley, Jun., M. A., F. Z. S. | Edited from the original notes | by | Alfred Newton, M. A., F. L. S., etc. | — | Part I. Accipitres. | — | London: | John Van Voorst, Paternoster Row. | M. DCCC. LXIV. 1 vol. 8vo. pp. i–viii, 1–180, with 1 l. of list of plates, col'd pll. ix (eggs), and A–I (landscape, nests, &c.).

This work has been recognized as extremely accurate and reliable, the greatest possible pains having been taken to secure these results by the distinguished editor, who moreover based his work upon the collections and field-notes of one of the most conscientious and laborious of naturalists, and an oölogist of large experience. The Catalogue enters upon great detail in describing and illustrating the large series of the eggs of *Accipitres* collected by Mr. Wolley, and in presenting the record of his experiences in the field. There are treated no fewer than 55 species of the Western Palæarctic region, with many colored figures of eggs, and views of the nests, &c. Pl. I, *Neophron percnopterus;* II–IV, *Aquila chrysaëtus;* V, VI, *Pandion haliaëtus;* VIII, *Falco gyrfalco;* IX, figs. 1–4, *Nyctale tengmalmi;* 5–8, *Surnia ulula;* 9–12, *Syrnium lapponicum.*

1864. Pamplin, W. The Osprey [Pandion haliaëtus] in North Wales. <*Zoologist*, xxii, 1864, p. 9039.

1864. Pratt, H. The Whitetailed Eagle [Haliaëtus albicilla] at Shoreham. <*Zoologist*, xxii, 1864, p. 8875.

1864. Rowland, W. H. Whitetailed Eagle [Haliaëtus albicilla] in Savernake Forrest. <*Zoologist*, xxii, 1864, p. 9020.

1864. Swinhoe, R. Natural-History Notes, principally from Formosa. <*Zoologist*, xxii, 1864, pp. 9224–9229.

Only ornithological in a paragraph on *Pandion.*

1865. Anon. Für Jagdfreunde. <*Zool. Gart.*, vi, 1865, p. 75.

Note on *Falco islandicus* and *Haliaëtus albicilla.*

1865. Bower, W. Whitetailed Eagle [Haliaëtus albicilla] in Sussex. <*Zoologist*, xxiii, 1865, p. 9465.

1865. Brunton, T. Peregrine Falcon [Falco peregrinus] breeding on the Antrim Coast. <*Zoologist*, xxiii, 1865, p. 9625.

1865. Bryant, H. Remarks on the Type of Buteo insignatus Cassin. <*Proc. Boston Soc. Nat. Hist.*, x, 1865, pp. 90, 91.

Identified with *B. swainsoni.*

1865. CASSIN, J. Notes on Some New and little known Rapacious Birds. < *Proc. Acad. Nat. Sci. Phila.*, xvii, 1865, pp. 2–5.
Polyborus audubonii, p. 2, sp. n.; *Spilornis bacha; Haliaetus blagrus; Limnaetus africanus*, sp. n., p. 4; *Otus stygius.*

1865. CREWE, H. H. [On Pandion haliaëtus, &c.] < *Ibis*, 2d ser., i, 1865, pp. 113, 114.

1865. GRAVIL, H. Peregrine Falcon and Merlin at Epworth. < *Zoologist*, xxiii, 1865, p. 9538.

1865. MATHEW, M. A. Osprey [Pandion haliaëtus] near Exeter. < *Zoologist*, xxiii, 1865, p. 9847.
From *Exeter and Plymouth Gazette*, Oct. 6, 1865.

1865. NEWCOME, E. C. [Buteo lineatus, shot Feb. 26, 1863, at Kingussie, Inverness-shire, Scotland.] < *Ibis*, 2d ser., i, 1865, p. 549.

1865. ROCKE, J. [On Pandion haliaëtus breeding in Scotland; cf. Ibis, 1865, p. 9.] < *Ibis*, 2d ser., i, 1865, p. 360.

1865. SCLATER, P. L. Description of a New Accipitrine Bird [Leucopternis princeps] from Costa Rica. < *P. Z. S.*, May 9, 1865, pp. 429, 430, pl. xxiv.

1865. SCLATER, P. L. [Correction of some previous remarks (P. Z. S., 1863, p. 251) on the supposed occurrence of Haliaëtus albicilla in America.] < *P. Z. S.*, xxxiii, 1865, p. 731.

1866. ANGUS, W. C. Osprey [Pandion haliaëtus] and Golden Eagle [Aquila chrysaëtus] in Aberdeenshire. < *Zoologist*, 2d ser., i, 1866, p. 497.

1866. DILKE, C. W. [Letter on the occurrence of Falco gyrfalco near Farnham.] < *P. Z. S.*, xxxiv, 1866, p. 2.

1866. GUNN, T. E. Peregrine Falcon [Falco peregrinus] in Suffolk. < *Zoologist*, 2d ser., i, 1866, p. 96.

1866. GUNN, T. E. Roughlegged Buzzard [Archibuteo lagopus] in Suffolk. < *Zoologist*, 2d ser., i, 1866, p. 142.

1866. HARRISON, H. Osprey [Pandion haliaëtus] at Rostherne Mere. < *Zoologist*, 2d ser., i, 1866, p. 30.

1866. HARRISON, H. Jerfalcon at Crosby Ravensworth. < *Zoologist*, 2d ser., i, 1866, p. 30.

1866. HARRISON, H. Jerfalcons near Biddulph. < *Zoologist*, 2d ser., i, 1866, pp. 30, 31.

1866. HOMEYER, A. v. Zwei Notizen über Falco peregrinus. < *J. f. O.*, xiv, 1866, p. 426.
Lebensweise.

1866. HOMEYER, A. v. Notiz über Aquila albicilla und Grus cinerea. < *J. f. O.*, xiv, 1866, p. 426.
Kampf zwischen Seeadler und Kranich.

1866. KRATZSCH, H. Vortrag über die Raubvögel. < *Mittheil. aus dem Osterlande*, xvii, pp. 204–210.
Mir nicht zugänglich.

1866. LANG, C. Osprey [Pandion haliaëtus] in Sussex. < *Zoologist*, 2d ser., i, 1866, p. 495.
From the "Field."

1866. MATHEW, M. A. Hen Harrier [Circus cyaneus] near Barnstaple. < *Zoologist*, 2d ser., i, 1866, p. 267.

1866. SCLATER, P. L. On a New Species of the Genus Accipiter [ventralis] from New Granada. < *P. Z. S.*, May 8, 1866, pp. 302–304.
With a synonymatic and critically annotated list of nine American species of the genus.

1866. SMITH, H. E. Roughlegged Buzzard [Archibuteo lagopus] in South Yorkshire. < *Zoologist*, 2d ser., i, 1866, p. 31.

1867. ANON. Osprey [Pandion haliaëtus] near Cork. < *Zoologist*, 2d ser., ii, 1867, p. 912.

From the "Field."

1867. BEAL, W. J. Novel way of shooting Eagles [Haliaëtus leucocephalus]. < *Am. Nat.*, i, 1867, p. 439.

On horse-back.

1867. BRUHIN, P. T. A. Originelles Mittel gegen Raubvögel. < *Zool. Gart.*, viii, 1867, pp. 238, 239.

1867. CLIFTON, *Lord.* Peregrine Falcon [Falco peregrinus] in Kent. < *Zoologist*, 2d ser., ii, 1867, pp. 631, 632.

1867. DUTTON, J. Peregrine Falcon [Falco peregrinus] breeding at Beachy Head. < *Zoologist*, 2d ser., ii, 1867, p. 791.

1867. ELWES, H. J. [On probable attack of Aquila chrysaëtus upon Falco peregrinus.] < *Ibis*, 2d ser., iii, 1867, pp. 143, 144.

1867. FEILDEN, H. W. Nesting of the Peregrine Falcon [Falco peregrinus]. < *Zoologist*, 2d ser., ii, 1867, p. 702.

1867. FEILDEN, H. W. Nesting of the Peregrine [Falcon, Falco peregrinus] in Stirlingshire. < *Zoologist*, 2d ser., ii, 1867, pp. 790, 791.

1867. GUNN, T. E. Osprey [Pandion haliaëtus] in Norfolk. < *Zoologist*, 2d ser., ii, 1867, p. 823.

1867. GURNEY, J. H. [Commentary on various Raptores, mentioned in papers by S. F. Baird, R. C. Beavan, and E. Newton, in Ibis, July, 1867.] < *Ibis*, 2d ser., iii, 1867, pp. 464–466.

1867. HARVIE-BROWN, J. A. Baldheaded Eagle [Haliaëtus leucocephalus] in Achill. < *Zoologist*, 2d ser., ii, 1867, pp. 562, 563.

The facts "can scarcely be considered conclusive."

1867. HARVIE-BROWN, J. A. Roughlegged Buzzard [Archibuteo lagopus] in Dumfriesshire. < *Zoologist*, 2d ser., ii, 1867, pp. 604, 605.

1867. HOMEYER, A. v. Notizen über Falco peregrinus. < *J. f. O.*, xv, 1867, p. 143.

Lebensweise.

1867. ROBERTS, G. Nesting of the Peregrine [Falcon, Falco peregrinus] in Yorkshire. < *Zoologist*, 2d ser., ii, 1867, pp. 947, 948.

1868. FOWLER, A. The Osprey, or Fish Hawk [Pandion carolinensis]. < *Am. Nat.*, ii, 1868, pp. 192-195.

Biographical.

1868. GUNN, T. E. Osprey [Pandion haliaëtus] in Norfolk. < *Zoologist*, 2d ser., iii, 1868, pp. 1176, 1177.

1868. GUNN, T. E. Peregrine Falcon [Falco peregrinus] at Hareland: Parasitical Worms. < *Zoologist*, 2d ser., iii, 1868, pp. 1217, 1218.

1868. GURNEY, J. H. [Note on the breeding of Haliaëtus albicilla in Mantchouria.] < *Ibis*, 2d ser., iv, 1868, pp. 129, 130.

1868. HADFIELD, H. Diagnostics of the Roughlegged Buzzard [Archibuteo lagopus]. < *Zoologist*, 2d ser., iii, 1868, pp. 1057, 1058.

1868. HALDEMANN, S. S. The Eagle [Haliaëtus spp.] a Fisher. < *Am. Nat.*, i, 1868, pp. 615, 616.

Haliaëtus spp. fish for themselves, not being always despoilers of *Pandion;* etymology and orthography of the generic name: *Haliaëtus*, and less properly in science the poetic form *Haliæëtus*, but never *Haliætus*.

1868. [HOMEYER, A. v.?] Kampf zwischen Adler und Fuchs. < *Aus. der Natur*, xlv, oder n. F., xxxiii, 1868, p. 544.

1868. RODD, E. H. Roughlegged Buzzard [Archibuteo lagopus] near Truro. < *Zoologist*, 2d ser., iii, 1867, p. 1058.

1869. Barboza du Bocage, J. V. Museu Nacional de Lisboa | — | Secção Zoologica | — | Catalogo das Collecções Ornithologicas | — | Psittaci—Papagaios. | Accipitre—sAves de Rapina. | — | Junho de 1869. | [Arms.] | Lisboa | Imprensa Nacional | 1869 8vo. pp. 62.

"... enceto agora a publicação dos catalogos das collecções zoologicas do museu de Lisboa. Os primeiros que se pôde levar à conclusão comprehendem duas ordens de aves, os *Psittacideos* ou *papagaios* e as *Aves de rapina.* Estes catalogos foram redigidos pelo sr. José Augusto de Sousa, ... Os *Psittacideos* constam de 204 especies e as *Aves de rapina* [pp. 29–62] de 223." Cf. *Ibis*, 1870, pp. 134, 135.

1869. Bree, C. R. Whitetailed Eagle [Haliaëtus albicilla] in Suffolk. < *Zoologist*, 2d ser., iv, 1869, pp. 1558, 1559.

1869. Clifton, *Lord.* Peregrine Falcon [Falco peregrinus] in Kent. < *Zoologist*, 2d ser., iv, 1869, p. 1598.

1869. Gravil, J. F., Jr. Osprey [Pandion haliaëtus] at Epworth. < *Zoologist*, 2d ser., iv, 1869, p. 1559.

1869. Gravil, J. F., Jr. Peregrine Falcon [Falco peregrinus] at Epworth. < *Zoologist*, 2d ser., iv, 1869, p. 1559.

1869. Gravil, J. F., Jr. Hen Harrier [Circus cyaneus] at Epworth. < *Zoologist*, 2d ser., iv, 1869, p. 1560.

1869. Gregson, C. S. The Peregrine Falcon [Falco peregrinus] breeding in Lancashire. < *Zoologist*, 2d ser., iv, 1869, p. 1846.

1869. Gunn, T. E. Capture of an Osprey [Pandion haliaëtus] in the North Sea. < *Zoologist*, 2d ser., iv, 1869, p. 1512.

1869. Gunn, T. E. Roughlegged Buzzard [Archibuteo lagopus] in Suffolk. < *Zoologist*, 2d ser., iv, 1869, p. 1513.

1869. Gunn, T. E. Peregrine Falcon [Falco peregrinus] and Merlin [F. æsalon] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, p. 1513.

1869. Gunn, T. E. Roughlegged Buzzard [Archibuteo lagopus] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, pp. 1598, 1599.

1869. Gunn, T. E. Osprey [Pandion haliaëtus] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, p. 1721.

1869. "G. W. L." [On a hawk catching an owl.] < *Am. Nat.*, ii, 1869, p. 670.

Two sentences, stating the fact, and asking if it is a common thing.

1869. Hoy, P. R. [On the nidification of Cooper's Hawk (Accipiter cooperi).] < *Proc. Boston Soc. Nat. Hist.*, xii, 1869, pp. 396, 397.

1869. [Newton, A.] [Extracts from a letter from T. M. Brewer, relating to his mistake of an Egg for that of Falco columbarius, &c. Cf. Ibis, 1868, p. 347.] < *Ibis*, 2d ser., v, 1869, pp. 422, 423.

1869. Sclater, P. L., *and* Salvin, O. Notes on the Species of the Genus Asturina. < *P. Z. S.*, xxxvii, 1869, pp. 129–134.

Systematic synopsis of 7 spp., with synonymy, diagnosis, and criticism. *A. ruficauda*, p. 133, sp. n.

1869. Sclater, P. L., *and* Salvin, O. Notes on the Species of the Genus Micrastur. < *P. Z. S.*, xxxvii, 1869, pp. 364–369.

Synonymatic and diagnostic synopsis of 7 spp., with critical commentary.

1869. Skinner, A. Roughlegged Buzzard [Archibuteo lagopus] near Faversham. < *Zoologist*, 2d ser., iv, 1869, p. 1559.

1869. Stevenson, H. Golden Eagle [Aquila chrysaëtus] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, p. 1863.

1869. Wonfor, T. W. Whitetailed Eagle [Haliaëtus albicilla] in Sussex. < *Zoologist*, 2d ser., iv, 1869, p. 1512.

1869. Wonfor, T. W. Peregrine Falcon [Falco peregrinus] in Sussex. < *Zoologist*, 2d ser., iv, 1869, p. 1559.

1869. WONFOR, T. W. Peregrine Falcon [Falco peregrinus] near Brighton. < *Zoologist*, 2d ser., iv, 1869, p. 1598.

1869. WOOD, W. [Habits of] The Red-tailed Hawk [Buteo borealis]. < *Am. Nat.*, iii, 1869, pp. 393–397.

1870. ABBOTT, C. C. The Marsh Harrier [Circus hudsonius]. < *Am. Nat.*, iv, 1870, 377.

1870. ABBOTT, C. C. Curious Conduct of a Sharp-shinned Hawk [Accipiter fuscus]. < *Am. Nat.*, iv, 1870, pp. 439, 440.

Gathering and preparing grass for its nest.

1870. ALLEN, J. A. What is the "Washington Eagle"? < *Am. Nat.*, iv, 1870, pp. 524–527.

It is stated to be *Haliaëtus leucocephalus*.

1870. ALLISON, T. Anecdote of the Sparrow-hawk [Falco sparverius]. < *Am. Nat.*, iv, 1870, p. 53.

1870. BLAKE-KNOX, H. Osprey [Pandion haliaëtus] in County Kerry. < *Zoologist*, 2d ser., v, 1870, p. 2406.

1870. BROOKE, V. [On the occurrence in Ireland of Astur atricapillus.] < *Ibis*, 2d ser., vi, 1870, pp. 538, 539.

1870. COLLETE, J. R. The Osprey (Pandion haliaëtus [carolinensis]). < *Am. Nat.*, iv, 1870, p. 57.

A biographical note.

1870. GUNN, T. E. Hen Harrier [Circus cyaneus] in Suffolk. < *Zoologist*, 2d ser., v, 1870, p. 1980.

1870. GUNN, T. E. Harriers [Circus cyaneus] in Norfolk. < *Zoologist*, 2d ser., v, 1870, p. 2382.

1870. GURNEY, J. H. [Circus "hudsonius" of Ibis, 1868, p. 356 = C. melanoleucus.] < *Ibis*, 2d ser., vi, 1870, pp. 444, 445.

1870. HART, W., *and* SON. Osprey [Pandion haliaëtus] at Poole. < *Zoologist*, 2d ser., v, 1870, p. 2382.

1870. HARVIE-BROWN, J. A. [On sites of the nests of Falco peregrinus in Scotland.] < *Ibis*, 2d ser., vi, 1870, p. 297.

1870. NEWTON, A. [Exhibition of Skins of Falcons from Alaska, referred to F. islandicus.] < *P. Z. S.*, xxxviii, 1870, p. 384.

1870. RIDGWAY, R. A New Classification of the North American Falconidæ, with Descriptions of Three New Species. < *Proc. Acad. Nat. Sci. Phila.*, xxii, 1870, pp. 138–150.

6 subfamilies. *Pandion* referred to *Milvinæ*.—Analytical tables of chars. of the groups, genera, and most of the species. *Onychotes*, pp. 142, 149, g. n.; O. *gruberi*, pp. 142, 149; *Falco richardsonii*, pp. 145, 147; *F. leucophrys*, pp. 140, 147, spp. nn. Cf. *Ibis*, 1871, pp. 460, 461.

The classification is based chiefly on the characters afforded by the structure of the "superciliary process of the lachrymal bone," whether rudimentary and not visible from the outside, or whether developing a superciliary shield. The author later very materially modified his views, upon further consideration of the general osteological structure of the family (cf. *Bull. U. S. Geol. and Geogr. Surv.*, 2d ser., No. 4, June 10, 1875, pp. 225–231, pll. xi–xviii).

1870. RODD, E. H. Iceland Falcon [Falco islandicus] in Cornwall. < *Zoologist*, 2d ser., v, 1870, pp. 2017, 2018.

1870. RODD, E. H. The Iceland Jer Falcon [Falco islandicus] in Cornwall. < *Zoologist*, 2d ser., v, 1870, p. 2060.

1870. ROWLEY, G. D. [Anecdote of a] Hen Harrier [Circus cyaneus]. < *Zoologist*, 2d ser., v, 1870, p. 2343.

1870. STEARNS, W. A. The Pigeon Hawk [i. e., Falco sparverius, not Falco columbarius as supposed.] < *Am. Nat.*, iv, 1870, p. 439.

Note of breeding at Amherst, Mass., U. S. A. (cf. *op. cit.*, v, p. 56.)

1870. WOOD, W. Falconry. < *Am. Nat.*, iv, 1870, pp. 74–82.
A short popular sketch of the subject, chiefly historical.

1870. WOODMAN, W. The Nesting of the Fish Hawk [Pandion carolinensis.] < *Am. Nat.*, iv, 1870, pp. 559, 560.
Criticism of E. A. Samuels's statement.

1871. ABBOTT, C. C. The Nest of the Pigeon Hawk [Falco columbarius.] < *Am. Nat.*, v, 1871, pp. 248–250.
Ref. to T. M. Brewer, *tom. cit.*, p. 56, and W. A. Stearns, *op. cit.*, iv, p. 439.

1871. ALLEN, J. A. The Migration of Hawks. < *Am. Nat.*, v, 1871, p. 173.
Confirms W. Wood's observations (*op. cit.*, iv, pp. 759, 760).

1871. BOYES, F. Marsh Harrier [Circus æruginosus] in East Yorkshire. < *Zoologist*, 2d ser., vi, 1871, p. 2847.

1871. BOYES, F. Ospreys [Pandion haliaëtus] in East Yorkshire. < *Zoologist*, 2d ser., vi, 1871, p. 2847.

1871. BREWER, T. M. The ["]Pigeon Hawk["]. < *Am. Nat.*, v, 1871, pp. 56, 57.
Corrects misstatement of W. Stearns, *op. cit.*, iv, p. 439.

1871. BROOKE, A. B. Graylag Goose and American Goshawk [Astur atricapillus, in Ireland]. < *Zoologist*, 2d ser., vi, 1871, pp. 2524, 2525.

1871. CAREY, C. B. Whitetailed Eagle [Haliaëtus albicilla] in Alderney. < *Zoologist*, 2d ser., vi, 1871, p. 2866.

1871. GUNN, T. E. Roughlegged Buzzard [Archibuteo lagopus] near Yarmouth. < *Zoologist*, 2d ser., vi, 1871, p. 2847.

1871. HADFIELD H. [On the characters of the European and American] Roughlegged Buzzard. < *Zoologist*, 2d ser., vi, 1871, pp. 2764, 2765.

1871. HOMEYER, E. F. VON. Monographische Beiträge. I. Gennaja und Falco Kaup. < *J. f. O.*, xix, 1871, pp. 39–56.
Commentary on what the writer considers the established species: *FF. tanypterus, cervicalis, jugger; peregrinus, minor, calidus, peregrinator, melanogenys, peregrinoides.*

1871. JARVIS, W. The Duck Hawk [Falco communis, breeding in White Mountains of New Hampshire]. < *Am. Nat.*, v, 1871, p. 662.

1871. NEWTON, A. On certain species of Falconidæ, Tetraonidæ, and Anatidæ. < *Proc. Acad. Nat. Sci. Phila.*, 1871, pp. 94–100.
Discussing the Great Northern Falcon question, and recognizing three species—*Falco candicans, islandicus, gyrfalco*, the comparative diagnoses of which are given.

1871. REEKS, H. [Distinction of American and European] Roughlegged Buzzard. < *Zoologist*, 2d ser., vi, 1871, p. 2726.

1871. RODD, E. H. Marsh Harrier [Circus æruginosus] at St. Mary's, Scilly. < *Zoologist*, 2d ser., vi, 1871, p. 2847.

1871. SAUNDERS, H. [Exhibition of, and Remarks upon, a series of Birds of the genus Aquila.] < *P. Z. S.*, xxxvix, 1871, pp. 37–39.

1871. SMITH, C. Marsh Harrier [Circus æruginosus] in Somersetshire. < *Zoologist*, 2d ser., vi, 1871, pp. 2866, 2867.

1871. STEARNS, W. A. The Pigeon Hawk. Correction [of misstatement made by writer, op. cit., iv, p. 439, the species being F. sparverius, not F. columbarius]. < *Am. Nat.*, v, 1871, p. 253.

1871. WOOD, W. The Game Falcons of New England. < *Am. Nat.*, v, 1871, pp. 80–87.
Relates chiefly to *Falco communis*—biographical, descriptive, etc.

1871. WOOD, W. Migration of Hawks. < *Am. Nat.*, iv, 1871, pp. 759, 760.
Note on the large flights occasionally observed.

1872. BUCKLEY, H. On some new or rare Birds' Eggs. < *P. Z. S.*, May 7, 1872, pp. 625, 626.
Falco polyagrus, Elanoides furcatus, Ictinia mississippiensis.

1872. CABANIS, J. [Gruppe der Würgfalken, Pnigohierax (n. g.) laniarius, jugger, und mexicanus.] < *J. f. O.*, xx, 1872, pp. 156, 157.

1872. CAREY, C. B. Another Whitetailed Eagle [Haliaëtus albicilla] in Guernsey. <*Zoologist*, 2d ser., vii, 1872, p. 2911.

1872. COUCH, J. Foot of the Whitetailed Eagle [Haliaëtus albicilla]. <*Zoologist*, 2d ser., vii, 1872, p. 2911.

1872. DRESSER, H. E. [Remarks on exhibition of Skins of various Eagles (Aquila).] <*P. Z. S.*, 1872, pp. 863–865.

1872. FEILDEN, H. W. Ospreys [Pandion haliaëtus] in Hampshire. <*Zoologist*, 2d ser., vii, 1872, pp. 2991, 2992.

1872. HADFIELD, H. Golden Eagle [Aquila chrysaëtus] in the Isle of Wight. <*Zoologist*, 2d ser., vii, 1872, pp. 3309–3311.

1872. RICKARDS, M. S. C. Whitetailed Eagle [Haliaëtus albicilla] in Gloucestershire. <*Zoologist*, 2d ser., vii, 1872, p. 2991.

1872. SALVIN, O. A further Revision of the Genus Leucopternis, with a Description of a new Species. <*Ibis*, 1872, pp. 239–243, pl. viii.

10 spp. *Leucopternis plumbea*, p. 240, pl. viii, sp. n.

1873. ANON. A battle in the air [between "large brown eagles"]. <*Forest and Stream*, i, Sept. 11, 1873, p. 71.

1873. ANON. Whitetailed Eagle [Haliaëtus albicilla] near Rye. <*Zoologist*, 2d ser., viii, 1873, p. 3411.

From "Field," Nov. 30.

1873. BECK, T. Peregrine [Falcon, Falco peregrinus] near Scarborough. <*Zoologist*, 2d ser., viii, 1873, p. 3802.

1873. BOLLE, C. [Haliaëtus albicilla in der Mark.] <*J. f. O.*, 1873, p. 74.

1873. "FRED BEVERLY" [FRED. A. OBER]. The Peregrine Falcon (Falco anatum). <*Forest and Stream*, i, Oct. 30, 1873, p. 181.

1873. GILPIN, J. B. On the Eagles of Nova Scotia. <*Trans. Nova Scotia Inst. Nat. Sci.*, iii, pt. iii, 1872 (pub. 1873), pp. 202–208.

2 spp.—*Aquila chrysætos* [sic], *Halieatus* [sic] *leucocephalus*.

1873. GILPIN, [J.] B. Variation in the Tarsal Envelope of the Bald Eagle [Haliaëtus leucocephalus]. <*Ann. Nat.*, vii, 1873, pp. 429, 430.

With editorial note by E. Coues.

1873. GREEN, C. A. Sea Eagle [Haliaëtus albicilla] in Jersey. <*Zoologist*, 2d ser., viii, 1873, p. 3411.

1873. GURNEY, J. H., JR. Osprey [Pandion haliaëtus] at Hempstead. <*Zoologist*, 2d ser., viii, 1873, pp. 3367, 3368.

1873. HERSCHEL, J. The Flight of the Eagle. <*Forest and Stream*, i, Sept. 18, 1873, p. 85.

1873. HOOPES, B. A. Description of a new variety of Buteo [borealis var kriderii]. <*Proc. Acad. Nat. Sci. Phila.*, xxv, 1873, pp. 238, 239, pl. 5.

1873. HOOPES, B. A. [Description of a new species of hawk, Buteo borealis var. kriderii.] <*Forest and Stream*, i, Oct. 16, 1873, p. 150.

1873. MAYNARD, C. J. Blue Kite—Everglade Kite. So-for-fun-i-kar [Rostrhamus sociabilis]. <*Am. Sportsm.*, iii, 1873, p. 181.

Biography, from his "Birds of Florida", 4to, Salem.

1873. NEWTON, A. On the Great Northern Falcons. <*Ann. Mag. Nat. Hist.*, 4th ser., xii, 1873, pp. 485–487.

Protests against the "retrograde" opinion of R. B. Sharpe, *P. Z. S.*, 1873, pp. 414–419; confirming that of J. Hancock, *Ann. Mag.*, 2d ser., xiii, pp. 110–112, and *Ann. N. H.*, ii, 1838, pp. 241–250.

1873. RIDGWAY, R. Catalogue of the Ornithological Collection of the Boston Society of Natural History. Part II. Falconidæ. <*Proc. Bost. Soc. Nat. Hist.*, xvi, 1873, pp. 43–72.

1873. Ridgway, R.—Continued.

Part I was A. Hyatt on *Spheniscidæ*, *op. cit.*, xiv, p. 237.—A simple catalogue, with reference to the locality, when known, of each specimen, which is mentioned by the Society's number, the original number of the Lafresnaye Collection, when any, being also given; numbers of species according to Gray's *Hand List* also affixed. *Rhynchofalco*, p. 46; *Antenor*, p. 63, nn. subgg. Cf. Coues, *Am. Nat.*, 1874, pp. 541–546.

1873. Ridgway, R. Revision of the Falconine Genera, Micrastur, Geranospiza and Rupornis, and the Strigine Genus, Glaucidium. < *Proc. Bost. Soc. Nat. Hist.*, xvi, 1873, pp. 73–106.

Published as an "Appendix" to the author's catalogue of the *Falconidæ* of the Boston Society, *tom. cit.*, pp. 43–72. An elaborate article, with characters and synonymy of the genera and species, analytical tables, etc., based upon examination of an unusually large series of specimens. *Micrastur*, 5 spp.; *Geranospiza*, 2 spp.; *Rupornis*, 2 spp.; *Glaucidium*, 8 spp.; besides several "varieties" of each of these genera excepting the first. There is much rectification of synonymy according to the views of the writer, which are not in entire accord with those of other authors. Cf. Coues, *Am. Nat.*, 1874.

Glaucidium is treated on pp. 91–106. This is the first elaborate monograph of the genus, and led to the subsequent revisions of the group by Mr. Sharpe (1875) and Mr. Ridgway (1876). (See *anteà* under *Strigidæ.*) The species allowed in this monograph are *G. passerinum* var. *californicum* (= *G. gnoma*). *G. pumilum*, *G. lansbergii* (= rufous phase of *G. jardinii*), *G. jardinii*, *G. ferrugineum*, *G. infuscatum* (= *G. ferrugineum*), *G. infuscatum* var. *gnoma* (= *G. ferrugineum*), *G. nanum*, and *G. siju*. *G. lansbergii* is described as new, (but has been determined to be the rufous phase of *G. jardinii*).—The rectifications here given in parenthesis are derived from the author's later study.

1873. Schlegel, H. Revue de la Collection des Oiseaux de Proie faisant partie du Musée des Pays-Bas. < *Mus. Nat. Hist. Pays-Bas*, 10e livr., Juillet 1873, pp. 1–156.

The author here reviews the whole subject, which he had previously gone over in 1862–3, but has not apparently much to add to science, though noting the increase of the Museum.

Otus capensis major, p. 3; *Noctua hirsuta minor*, p. 24; *Falco neglectus*, p. 43; *Astur henstii*, p. 62; *Baza celebensis*, p. 135, spp. nn.

1873. Sharpe, R. B. On the Falco arcticus of Holböll, with Remarks on the changes of Plumage in some other Accipitrine Birds. < *P. Z. S.*, 1873, pp. 414–419, pl. xxxix.

F. holboelli, p. 415, sp. n. The pl. shows changes of plumage in *Falco*, *Cymindis*, and *Accipiter*. Cf. especially Newton, *Ann. Mag. Nat. Hist.*, xii, 1873, pp. 485–487.

1873. Steenstrup, J. Om de Mærker, som Knoklerne i Fuglenes ophulkede Foderboller bære af Opholdet i Fuglenes Maver, samt om disse Mærkers Betydning for Geologien og Archæologien. < *Vidensk. Meddel. Naturhist. Foren. Kjöbenhavn* for Aaret 1872 (1873), pp. 211–236, pl. iv.

This is the full text of the article, a résumé of which, in French, is given in the same volume, pp. 28–36, and also in *Gerv. Journ. de Zool.*, iii, 1873, pp. 488–498.

1873. Steenstrup, J. Sur les marques que portent les os contenus dans les pelotes rejetées par les oiseaux de proie et sur l'importance de ces marques pour la géologie et l'archéologie. < *Vidensk. Meddel. Naturhist. Foren. Kjöbenhavn* for Aaret 1872 (1873), pp. 28–36, pl. iv.

1873. Steenstrup, J. Sur les marques que portent les os contenus dans les pelotes rejetées par les oiseaux de proie et sur l'importance de ces marques pour la géologie et l'archéologie. < *Gerv. Journ. de Zool.*, ii, 1873, pp. 488–498, pl. xx.

Analyse, faite par l'auteur, de son Mémoire inséré dans le *Vidensk. Meddel. fra den Naturh. Foren. i Kjǿbenh.* for Aaret 1872, 1873, p. 211–236, pl. iv.

1873. Wood, W. The Game Falcons of New England. The Pigeon Hawk [Falco columbarius]. < *Am. Nat.*, vii, 1873, pp. 340–345.

A biography of this species.

1874. Anon. An Eagle's struggle with a Girl. < *Am. Sportsman*, iii, 1873–4, p. 375.

Quoted from Jacksonville, Florida, *Republican* (newspaper). An eagle attacks a child 14 years old.

1874. Anon. Singular Capture of an Eagle. < *Zoologist*, 2d ser., ix, 1874, p. 3953.

From *Inverness Advertiser*.

1874. Barrington, R. M. Golden Eagle [Aquila chrysaëtus] at Powerscourt. < *Zoologist*, 2d ser., ix, 1874, p. 3952.

1874. Clark-Kennedy, A. J. An Osprey [Pandion haliaëtus] carrying off Young Chickens. < *Zoologist*, 2d ser., ix, 1874, pp. 3996, 3997.

1874. Coues, E. Habits and Characteristics of Swainson's Buzzard [Buteo swainsoni]. < *Am. Nat.*, viii, 1874, pp. 282–287.

Extended description and biography.

1874. Gunn, T. E. Marsh Harrier [Circus æruginosus] in Suffolk. < *Zoologist*, 2d ser., ix, 1874, p. 4117.

1874. Hadfield, H. Peregrines [Falco peregrinus] in the Isle of Wight. < *Zoologist*, 2d ser., ix, 1874, pp. 4032, 4033.

1874. Harvie-Brown, J. A. Osprey [Pandion haliaëtus] carrying off Chickens. < *Zoologist*, 2d ser., ix, 1874, p. 4117.

1874. "Nimrod." [Jarvis, W.] The Peregrine Falcon (Falco Peregrinus). < *Am. Sportsman*, iii, 1874, p. 323.

1874. Ruff, M. D. Fish-Hawks [Pandion carolinensis) and their Nests. < *St. Nicholas Mag.*, i, 1874, pp. 79–82, one illust.

1874. Sharpe, R. B. Catalogue | of the | Accipitres, | or | Diurnal Birds of Prey, | in the | collection | of the | British Museum. | By | R. Bowdler Sharpe. | London: | printed by order of the Trustees. | 1874. 1 vol. pp. i–xiv, 1–480, pll. i–xiv, numberless cuts in text.

This is the first volume of the New British Museum Catalogue of Birds, the title of the work as one of the series being: Catalogue | of the | Birds | of the | British Museum. | Volume I. | London: | printed by order of the Trustees. | 1874. The scope of these new Catalogues is greatly enlarged over that of previous ones, and much beyond the requirements of a mere list: being, in fact, a series of monographs of the different groups treated. The present volume, like that on the Owls, is by Mr. Sharpe. It contains a very full account of all the known species of Diurnal Birds of Prey, 377 in number, of which only about 25 are wanting in the collection. These are elaborately described, with extensive synonymy, analytical keys to the species and genera, &c. Many details of structure are illustrated by the woodcuts, and a number of species are figured in colors. The total number of specimens handled is 2,466.

The author's classification has been much criticised. He divides the *Raptores* into three suborders, *Falcones*, *Pandiones*, and *Striges*. The *Pandiones* include only the two genera *Pandion* and *Polioaëtus*. The *Falcones* are made to consist of two families, *Falconidæ* and *Vulturidæ*. The latter include the *Cathartidæ*, certainly more different from *Vulturidæ* than these are from *Falconidæ*. The *Falconidæ* are divided into *Polyborinæ*, *Accipitrinæ*, *Buteoninæ*, *Aquilinæ*, *Falconinæ*. Under the first of these subfamilies are ranged *Cariama!* and *Serpentarius*. These birds are treated under 80 genera, of which the following 9 are new: *Lophogyps*, p. 15; *Œnops*, p. 25; *Urotriorchis*, p. 83; *Erythrocnema*, p. 84; *Heterospizias*, p. 160; *Buteola*, p. 201; *Lophotriorchis*, p. 255; *Henicopernis*, p. 241; *Microhierax*, p. 366. The following species are figured:

Pl. I. *Gyps kolbi*. II. f. 1, *Œnops falklandica;* f. 2, *Œ. urubitinga*. III. *Astur macroscelides*. IV. f. 1, *A. soloensis;* f. 2, *A. cuculoides*. V. *A. wallacii*. VI. f. 1, *A. toussenelii;* f. 2, *Accipiter hartlaubii*. VII. f. 1, *Buteo plumipes;* f. 2, *Archibuteo strophiatus*. VIII. *Buteo ferox*. IX. *Spilornis pallidus*. X. f. 1, *Baza magnirostris;* f. 2, *B. erythrothorax*. XI, f. 1, *B. sumatrensis*; f. 2, *B. cuculoides*. XII. *Falco minor*. XIII, *Hierofalco holbœlli*. XIV. f. 1, *Cerchneis alopex;* f. 2, *C. zoniventris*.

1874. Sundevall, C. J. Fornyad Anordnung av Dagroofoglarna (Dispositio nova Accipitrum Hemeroharpagorum). < *Öfvers. af Kongl. Vetensk.-Akad. Förh.*, 1874, pp. 21–29.

Not seen:—*Plangus neogœus*, p. 28.

1874. Unwin, W. H. On the Breeding of the Golden Eagle (Aquila chrysaëtos) in North-western India. < *P. Z. S.*, xlii, 1874, pp. 208–212.

1874. Wood, W. The Game Falcons of New England. The Sparrow Hawk [Falco sparverius]. < *Am. Nat.*, viii, 1874, pp. 266–270.

Biographical notice.

1875. Anon. Hawking. < *Rod and Gun*, vi, Aug. 14, 1875, p. 294.

Reprint from the *London Quarterly*.

1875. Anon. [Eagles in Pennsylvania.] < *Rod and Gun*, vi, Nov. 20, 1875, p. 124.

1875. Anon. Whitetailed Eagle [Haliaëtus albicilla] in Northamptonshire. < *Zoologist*, 2d ser., x, Feb., 1875, p. 4337.

From *The Field*, Jan. 16, 1875.

1875. "Audubon" [*pseudon.*]. Eagles [Haliaëtus leucocephalus] on the Susquehanna. < *Forest and Stream*, v, Nov. 25, 1875, p. 243.

1875. Audubon, J. J. The Golden Eagle, Aquila chrysaetus, Linn. < *The Oölogist*, i, 1875, pp. 68, 69.

Quoted from his work.

1875. Blasius, W. [Ueber die nordischen Jagdfalken.] < *Ber. über d. xxi. Vers. d. deut. Orn.-Ges.*, 1875, pp. 17, 18.

1875. Boardman, G. A. [Haliaëtus leucocephalus catching its own fish.] < *Forest and Stream*, iv, Feb. 18, 1875, p. 22.

1875. "Bob." Great Flight of Hawks. < *Rod and Gun*, vii, Oct. 2, 1875, p. 3.

1875. Clark-Kennedy, A. J. Whitetailed Eagle [Haliaëtus albicilla] in Norfolk. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4690.

1875. Clark-Kennedy, A. J. Osprey [Pandion haliaëtus] in Suffolk. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4690.

1875. Corbin, G. E. Osprey [Pandion haliaëtus] in Hampshire. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4690.

1875. D[avis], F. J. Nest and Eggs of the Broad-winged Hawk. (Buteo pennsylvanicus.) < *The Oölogist*, i, 1875, p. 2.

1875. Dresser, H. E. Notes on Falco labradorus, Aud., Falco sacer, Forster, and Falco spadiceus, Forster. < *P. Z. S.*, Mar. 2, 1875, pp. 114–117.

1. *F. labradorus* is distinguished as a good species. *F. sacer* is queried as a synonym of *F. gyrfalco*. *F. spadiceus*, which Sharpe and Ridgway had each referred to *Archibuteo sanctijohannis*, and of which Vieillot had made a *Buteo spadiceus*, is identified with *Circus hudsonius*.

1875. [Fitch, E. H.] The Swallow-tailed Kite. (Nauclerus forficatus.) < *The Scientific Monthly* (Toledo, Ohio), i, No. ii, 1875, pp. 41–44, fig.

Popular account.

1875. G[ray], A. F. [Haliaëtus leucocephalus in Massachusetts.] < *Forest and Stream*, iv, Feb. 18, 1875, p. 22.

1875–79. Gurney, J. H. Notes on a 'Catalogue of the Accipitres in the British Museum,' by R. Bowdler Sharpe (1874). < *Ibis*, 3d ser., v, Jan., 1875, pp. 87–96; Apr., 1875, pp. 221–236; July, 1875, pp. 353–370, pl. vi; Oct., 1875, pp. 468–484.—vi, Jan., 1876, pp. 65–77, pl. iii; Apr., 1876, pp. 230–243; July, 1876, pp. 364–376; Oct., 1876, pp. 467–493.—4th ser., i, Apr., 1877, pp. 209–236; July, 1877, pp. 325–333; Oct., 1877, pp. 418–437.—ii, Jan., 1878, pp. 84–102, pl. ii; Apr., 1878, pp. 145–164: July, 1878, pp. 352–356; Oct., 1878, pp. 451–466.—iii, Apr., 1879, pp. 71–84; July, 1879, pp. 330–341; Oct., 1879, pp. 464–470. (Continued in 1880.)

Accipiter ovampensis, 1875, pl. vi. *Buteo hypospodius*, 1876, pl. iii. *Dryotriorchis spectabilis*, 1878, pl. ii.

This is a very notable series of papers, forming a critical review of Mr. Sharpe's work, from a hand long specially practised in this department of ornithology. Containing as it does many elaborate discussions of doubtful points and extended descriptions of specimens, as well as other additions to and corrections of Mr. Sharpe's Catalogue, it is almost necessarily to be consulted by any one using the work of the last-named author.

1875. Henshaw, H. W. Avi-Fauna—A Correction. < *Rod and Gun*, vi, Apr. 24, 1875, p. 57.

Capt. Bendire's discovery of *Urubitinga anthracina* in Arizona.

1875. Ingersoll, E. Eagles. < *Forest and Stream*, v, Nov. 4, 1875, p. 195.

Bald eagle reported as carrying away children and lambs in Pennsylvania.

1875. "J. H. D." "Cave Aquilam." < *Rod and Gun*, vi, May 8, 1875, p. 91.

"Large brown eagle" seizing ducks shot by gunners.

1875. MATHEW, M. A. Flight of a Male Peregrine at an old Male Hen Harrier. < *Zoologist*, 2d ser., x, Jan., 1875, pp. 4296, 4297.

1875. "NIMROD." [JARVIS, W.] The Swallow-tailed hawk [Elanoides forficatus]. < *Forest and Stream*, v, Oct. 21, 1875, p. 163.

Merely descriptive of plumage and habit.

1875. "NIMROD." [JARVIS, W.] [Haliaëtus leucocephalus capturing its own fish.] < *Forest and Stream*, iii, Jan. 28, 1875, p. 389.

1875. RIDGWAY, R. The Sparrow hawk or American Kestrel [Tinnunculus sparverius]. < *Rod and Gun*, vi, July 3, 1875, pp. 209 and 220.

1875. RIDGWAY, R. Notice of a very rare Hawk [Onychotes gruberi]. < *Rod and Gun*, vi, May 1, 1875, p. 65.

1875. RIDGWAY, R. On Nisus cooperi (Bonaparte), and N. gundlachi (Lawrence). < *Proc. Acad. Nat. Sci. Phila.*, 1875, pp. 78–88.

A very elaborate article, descriptive, synonymatic and critical, in which the distinction of these two species is maintained. The synonymy is very copious.

1875. RIDGWAY, R. On the Buteonine Subgenus Craxirex, Gould. < *Proc. Acad. Nat. Sci. Phila.*, 1875, pp. 89–119.

Very complete treatment, with copious synonymy, exhaustive description, and much critical comment, of 6 spp.: *Buteo (Craxirex) galapagoensis, poliosomus, erythronotus, albicaudatus, swainsoni,* and *pennsylvanicus*, which are all the species the author allows to stand in this particular group, distinguished from typical *Buteo* (type *vulgaris*) by having only three instead of four outer primaries emarginate on their inner webs. *Tachytriorchis* and *Poecilopternis* of Kaup are regarded as strictly synonymous. The group is considered peculiar to America, four of the species being neotropical.

1875. RIDGWAY, R. Outlines of a Natural Arrangement of the Falconidæ. < *Bull. U. S. Geol. Surv. Terr.*, 2d ser., No. 4, June 10, 1875, pp. 225–231, pll. xi–xviii.

Divided into *Falconinæ* and *Buteoninæ*: *Falconinæ* subdivided into *Falcones, Polybori, Micrastures, Herpetotheres*. Cf. *Ibis*, 1875, pp. 498–500.

Compare same author, *Pr. Phila. Acad.*, 1870, pp. 138–150. That former classification is here very decidedly modified, upon broader consideration of the osteology of the family, with special reference to characters afforded by the sternum and shoulder-girdle, many of the features of which are illustrated on the plates.

1875. "ROAMER." Eagles [Haliaëtus leucocephalus]. < *Forest and Stream*, iv, Mar. 4, 1875, p. 55.

1875. SHARPE, R. B. Contributions to a History of the Accipitres. Notes on Birds of Prey in the Museum at the Jardin des Plantes and in the Collection of Mons. A. Bouvier. < *Ibis*, 3d ser., v, Apr., 1875, pp. 253–261.

Notes on 12 spp. *Microhierax sinensis* (David, MSS.), p. 254; *Syrnium davidi*, p. 256; *Glaucidium tephronotum, Scotopelia bouvieri*, p. 260, spp. nn. List of 6 spp. of *Carine*, 28 spp. of *Ninox*, 24 spp. of *Glaucidium*.

1875. WHITAKER, J. Peregrine Falcon in Nottinghamshire. < *Zoologist*, 2d ser., x, July, 1875, p. 4537.

1875. WILLMOTT, C. Golden Eagle [Aquila chrysaëtus] near Chatteris. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4703.

1876. BARRINGTON, R. M. Golden Eagles trained to capture Wolves and Foxes. < *Zoologist*, 2d ser., xi, Nov., 1876, p. 5162.

1876. BREWSTER, W. Winter habits of buzzard hawks. < *Forest and Stream*, vi, Feb. 10, 1876, p. 3.

1876. BROWNE, MONTAGU. Osprey [Pandion haliaëtus] near Birmingham. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4759.

1876. CARTWRIGHT, D. W. A plucky eagle. < *Rod and Gun*, viii, Apr. 22, 1876, p. 55.

Anecdote from "Western Wild Animals."

1876. CHARBONNIER, H. J. Greenland Falcon in Scotland. < *Zoologist*, 2d ser., xi, June, 1876, p. 4954.

1876. C[LARKE], S. C. Fish hawks and eagles [in Florida]. < *Forest and Stream*, vii, Dec. 7, 1876, p. 276. See vol. viii, p. 4.

1876. CLARK-KENNEDY, A. J. Whitetailed Eagle in Suffolk. < *Zoologist*, 2d ser., xi, Dec., 1876, p. 5178.

1876. CONCH, J. Greenland or Iceland Falcon in Guernsey. < *Zoologist*, 2d ser., xi, June, 1876, pp. 4953, 4954.

1876. COPE, W. J. Peregrine Falcons breeding on the Yorkshire Coast. < *Zoologist*, 2d ser., xi, July, 1876, p. 5000.

1876. CORDEAUX, J. Food of Peregrine, &c. < *Zoologist*, 2d ser., xi, Mar., 1876, pp. 4828, 4829.

1876. COUES, E. Letters on Ornithology. No. 9.—The Red-tailed Buzzard [Buteo borealis] and other Hawks. < *Chicago Field*, vi, No. 19, Dec. 23, 1879, p. 301, fig.

Popular notice of North American *Falconidæ*, with fig. of head of species named.

1876. DRESSER, H. E. Falco labradorus. (Labrador Falcon.) < *Rowl. Ornith. Misc.*, pt. iii, Jan., 1876, pp. 185–191, pll. xxiv, xv.

Maintaining the validity of this species in an extended article, illustrated with colored figures of adult and young.

1876. GURNEY, J. H., JR. Peregrine in the City of Norwich. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4795.

1876. GURNEY, J. H., JR. Notes on the Roughlegged Buzzard. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4829.

1876. GURNEY, J. H., JR. Plumage of the Roughlegged Buzzard. < *Zoologist*, 2d ser., xi, May, 1876, p. 4921.

1876. GURNEY, J. H., JR. Roughlegged Buzzard. < *Zoologist*, 2d ser., xi, May, 1876, p. 4921.

1876. GURNEY, J. H., JR. Variety of the Sea Eagle. < *Zoologist*, 2d ser., xi, July, 1876, p. 5000.

1876. GURNEY, J. H., JR. Falco peregrinus in Egypt. < *Zoologist*, 2d ser., Aug., 1876, p. 5041.

1876. GURNEY, J. H., JR. Sternum of the Peregrine Falcon. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5079.

1876. HADFIELD, H. Roughlegged Buzzard. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4920, 4921.

1876. "H. W." The Red-tailed Hawk. < *Forest and Stream*, v, Jan. 6, 1876, p. 340.

1876. [INGERSOLL, E.] American Falconidæ, etc. < *Forest and Stream*, vi, Apr. 13, 1876, p. 148.

Review of R. Ridgway's papers in *Bull. U. S. Geol. and Geog. Surv. Terr.*, ii, No. 2, 1876.

1876. JACOB, E. Osprey [Pandion haliaëtus] in County Waterford. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4759.

1876. MATHEW, M. A. Archibuteo Sancti-Johannis. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4870.

Its possible occurrence in England.

1876. MAYNARD, C. J. The Common Buzzard Hawk (Buteo vulgaris) of Europe in North America. < *Bull. Nutt. Ornith. Club*, i, No. 1, Apr., 1876, pp. 2–6.

But see *tom. cit.*, No. 2, July, 1876, p. 32.

1876. MCNICHOL, N. Iceland Falcon in Caithness. < *Zoologist*, 2d ser., xi, 1876, p. 4920.

1876. NEWMAN, E. The Eagles of Poetry and Prose. < *Zoologist*, 2d ser., xi, Nov., 1876, pp. 5133, 5136.

This posthumous fragment appears to have been written with some idea that it should form the commencement of a popular work to be entitled 'British Bird Biography'—an idea probably abandoned, as no continuation has been found.

1876. Ramsay, E. P. Catalogue | of the | Australian Accipitres | or | Diurnal Birds of Prey | inhabiting Australia, | in the | Collection of the Australian Museum | at | Sidney, N. S. W. | By | E. Pierson Ramsay, F. L. S., C. M. Z. S., &c., &c. | Curator of the Museum, Sidney. | — | Sidney: | printed by order of the Minister of Justice and Public Instruction. | — | 1876. pp. i–viii, 1 leaf, pp. 1–64, 1–3.

There is another title of this little brochure, according to which it is Part I of a Catalogue of Australian Birds in the Museum. It is highly wrought for a catalogue—quite in the style of the *Brit. Mus. Catalogues*, treating 27 spp. with description, synonymy, &c.—these being, in fact, all the Diurnal Birds of Prey known to the author to inhabit Australia.

1876. Richardson, W. Roughlegged Buzzard in Yorkshire. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4760.

1876. Ridgway, R. Regarding Buteo vulgaris in North America. < *Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, pp. 32–39.

Critical discussion of the question, with special reference to *tom. cit.*, No. 1, p. 2.

1876. Ridgway, R. Studies of the American Falconidæ. By Robert Ridgway. Monograph of the Polybori. < *Bull. U. S. Geol. Surv. Terr.*, 2d ser., No. 6, Feb. 8, 1876, pp. 451–473, pll. 22–26.

The genera of *Polybori* are recognized as *Polyborus*, *Phalcobœnus*, *Milvago*, and *Ibycter*, monography of the species of each of which is given, illustrated with details of form on the 5 plates. *Polyborus lutosus*, p. 459, sp. n.

1876. Ridgway, R. Studies of the American Falconidæ. < *Bull. U. S. Geol. and Geogr. Surv. Terr.*, ii, No. 2, Apr. 1, 1876, pp. 91–182, pll. 30, 31.

In this, the third paper of the series (all published in this *Bull.*), numerous genera are studied with care, the results of investigation constituting a monography of each one of them. *Nisus*, pp. 91–131; *Geranoaëtus*, pp. 131–133; *Onychotes*, pp. 134, 135; *Herpetotheres*, pp. 136–138, pll. 30–31, giving details of *H. cachinnans*; *Heterospizias*, pp. 139, 140; *Buteogallus*, p. 141; *Busarellus*, pp. 142–144; *Thrasaëtus*, pp. 145, 146; *Morphnus*, pp. 147–149; *Gampsonyx*, pp. 150, 151; *Leptodon*, pp. 152–155; *Regerhinus*, pp. 156–160; *Antenor*, pp. 161–165; *Spiziastur*, p. 166; *Urubitinga*, p. 167–173; *Leucopternis*, pp. 174–179; *Elanoides*, pp. 180–182. The descriptions are elaborate, in most cases, and the synonymy is very copious.

1876. Ridgway, R. Studies of the American Falconidae.—Monograph of the Genus Micrastur. < *Proc. Acad. Nat. Sci. Phila.*, Dec. 28, 1875, pp. 470–502, figg. 1–9. (Pub. 1876.)

Elaborate treatment of 6 spp. of the genus, with copious synonymy, extended descriptions, and critical comment; much also on the literature of the subject. The species recognized as valid are 7 in number, viz: *M. melanoleucus*, *mirandollii*, *guerilla*, *zonothorax*, *ruficollis*, *pelzelni*, sp. n., p. 494, *concentricus*. Details of heads, feet, and wings are figured. The appendix, pp. 500–502, gives biographical notes on *M. melanoleucus*, by A. J. Grayson.—The author afterward reviewed his work in *Ibis*, 1876, pp. 1–5, *q. v.* See also his original paper on the genus, *Proc. Bost. Soc.*, xvi, 1873, pp. 73–106.

1876. Ridgway, R. Second Thoughts on the Genus Micrastur. < *Ibis*, 3d ser., Jan. 1876, pp. 1–5.

Results of examination of the entire series of the smaller members of this genus in the Mus. Salvin-Godman, modifying views before given in *Proc. Bost. Soc.*, xvi, 1873, pp. 73–106, and *Proc. Phila. Acad.*, 1875 (pub. 1876), pp. 470–502, *qq. vv.* The spp. now admitted are *MM. melanoleucus*, *mirandollii*, *guerilla*, *zonothorax*, *ruficollis*, *pelzelni*, and *concentricus*, all of which are analyzed, with critical determinations of the names of old authors, and a special description of *M. pelzelni* Ridgw.

1876. Rocke, J. Greenland Falcon in North Wales. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4919, 4920.

1876. Rowley, G. D. Falconry. < *Rowl. Orn. Misc.*, pt. iv, May, 1876, pp. 213–222, pll. xxvii–xxix.

1876. [Sclater, P. L.] [On Young Caracaras (Polyborus sp.) in remarkable plumage.] < *P. Z. S.*, Apr. 4, 1876, p. 333, pl. xxv.

The species here left in doubt was afterward determined to be *P. tharus*, juv., in an abnormal phase of coloring. Cf. *P. Z. S.*, 1878, pp. 230–232.

1876. Sclater, J. Plumage of the Roughlegged Buzzard. < *Zoologist*, 2d ser., xi, June, 1876, p. 4955.

1876. VENNOR, H. G. Our Birds of Prey, | or the | Eagles, Hawks, and Owls | of | Canada. | By | Henry G. Vennor, F. G. S. | Of the Geological Survey of Canada. | With 30 Photographic Illustrations by Wm. Notman. | — | R. Worthington, 750 Broadway, New York. | Montreal: | published by Dawson Brothers. | — | 1876. 1 vol. sm. 4to. pp. i–viii, 1–154, with 30 photog. pll.

An interesting and valuable treatise in so far as it is largely based upon original observations and personal experiences, though the technic of the work is decidedly behind the times. The photographic illustrations must be regarded as an experiment not entirely successful, being for the most part taken from very badly stuffed specimens.—Pl. 1, Duck Hawk. 2, Pigeon Hawk. 3, Gyr Falcon. 4, same, dark variety. 5, Sparrow Hawk. 6, 7, American Goshawk, ad. and young. 8, Cooper's Hawk. 9, Sharp-shinned Hawk. 10, Red-tailed Buzzard. 11, Red-shouldered Buzzard. 12, same, young. 13, Broad-winged Buzzard. 14, Rough-legged Buzzard. 15, same, black variety. 16, Marsh Hawk. 17, Golden Eagle. 18, Bald Eagle. 19, Osprey. 20, Great Horned Owl. 21, Screech Owl. 22, Long-eared Owl. 23, Short-eared Owl. 24. Great Gray Owl. 25, Barred Owl. 26, Sparrow Owl. 27, Acadian Owl. 28, 29, Snowy Owl. 30, Hawk Owl.

1876. WHITAKER, J. Kite, Hen Harrier and Hobby in Nottinghamshire. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4760.

1876. WHITAKER, J. Roughlegged Buzzard at Rufford. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4870.

1876. WOOD, W. The game Falcons of New England: the Goshawk [Astur atricapillus]. < *Am. Nat.*, x, No. 3, 1876, pp. 132–135.

A good popular account of the habits of this species.

1876. YUILLE, S. Hen Harrier in Northumberland. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5079.

1877. A[LLEN], J. A. Ridgway's "Studies of the American Falconidæ." < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 70–73.

Extended review of several of Ridgway's late papers on this subject, in *Bull. U. S. Geol. Surv. Terr.*, *Proc. Phila. Acad.*, and *Proc. Bost. Soc.*

1877. BOUDWIN, G. Peregrine falcon (Falco Peregrinus). < *Forest and Stream*, viii, Apr. 19, 1877, p. 161.

Falco anatum feeding upon the pigeons around St. Peter's Church, Philadelphia.

1877. C[LARKE], S. C., *and* "DOM PEDRO" [QUAY, T. R.]. "Does the Osprey ever take dead fish?" < *Forest and Stream*, viii, Feb. 8, 1877, p. 4.

Letters detailing affirmative instances. See vol. vii, p. 276.

1877. CORY, C. B. The Black Gyr-Falcon (Falco sacer var. labradora) in Massachusetts. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 27.

1877. COUES, E. Eastward Range [to Illinois] of the Ferruginous Buzzard (Archibuteo ferrugineus). < *Bull. Nutt. Ornith. Club*, ii, No. 1, 1877, p. 26.

1877. COUES, E. Letters on Ornithology. No. 13.—The Harrier [Circus hudsonius]. < *The Chicago Field*, Feb. 3, 1877, fig.

Notice of habits, etc.

1877. "DOM PEDRO" [QUAY, T. R.]. Does the Osprey [Pandion haliaëtus] ever take dead fish? < *Forest and Stream*, viii, May 17, 1877, p. 224.

1877. "FLORIDA." Audacity in Hawks. < *Forest and Stream*, viii, June 14, 1877, p. 300.

1877. GIBBS, R. M. W. A Rare Bird [Buteo harlani]. < *The Naturalist and Fancier* (of Grand Rapids, Michigan), Aug., 1877, p. 31.

Description, by R. Ridgway, of a specimen from Gainesville, Texas, Nov. 16, 1876.

1877. HARRINGTON, B. J. A very rare bird [dark variety of gyrfalcon, in Montreal]. < *Canadian Naturalist*, viii, Apr., 1877, p. 249.

1877. MURDOCH, J. The Pigeon-Hawk (Falco columbarius) at Sea. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 79.

1877. RAGSDALE, G. H. Capture of Buteo harlani (Aud.) in Texas. < *Forest and Stream*, ix, Aug. 16, 1877, p. 24.

1877. "ROAMER" [ ]. Does the Osprey Ever Take Dead Fish? <*Forest and Stream*, vii, Jan. 11, 1877, p. 357.

1877. "ROAMER" [ ]. Ospreys Taking Dead Fish. <*Forest and Stream*, viii, June 14, 1877, p. 300. See pp. 4, 113.

1877. "ROAMER" [ ]. Ospreys taking dead fish. <*Forest and Stream*, viii, Mar. 29, 1877, p. 113. See p. 4, 224, 300.

1877. [SCOTT, W. E. D.] A Strange Flight of Hawks. <*The Country*, i, Dec. 8, 1877, p. 79.

Brief remarks on the migratory habits of hawks, *à propos* of a contextual paragraph quoted.

1878. A[LLEN], J. A. Sharpe's "Catalogue of the Birds in the British Museum." <*Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 77–79.

Review of the parts of the work (vols. i and ii) relating to *Falconidæ* and *Strigidæ*.

1878. ANON. The Bird of America [Haliaëtus leucocephalus]. <*Mining and Scientific Press* (newspaper of San Francisco), xxxvii, No. 25, Dec. 21, 1878, p. 393.

A popular biographical sketch.

1878. ANON. The Harpy Eagle (Harpya destructor). <*The Oölogist*, iv, No. 4, June, 1878, pp. 28–30.

Account of habits, quoted from *Knight's Museum of Animated Nature*, i, p. 259.

1878. [BENDIRE, C.] Golden Eagle [Aquila chrysaëtus]. <*Familiar Science and Fancier's Journ.*, new ser., v, Apr., 1878, p. 88.

Cowardly behavior in presence of danger to nest.

1878. BREWSTER, W. Occurrence of a Second Specimen of Swainson's Buzzard (Buteo swainsoni) in Massachusetts. <*Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 39, 40.

1878. COUES, E. Swallow-tailed Kite [Elanoides forficatus] in Dakota in Winter. <*Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, p. 147.

Occurrence at Fort Sisseton, Dakota, during nearly the whole winter, according to observations of Dr. C. E. McChesney, U. S. A.

1878. INGERSOLL, E. [Report of discussion upon habits of eagles at] The Linnean Society. <*The Country*, i, Apr. 13, 1878, p. 354.

1878. GOSS, N. S. Breeding of the Duck Hawk [Falco communis var. anatum] in trees. <*Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 32–34.

1878. GURNEY, J. H. Notes on a Specimen of Polyborus lately living in the Society's Gardens. <*P. Z. S.*, Feb. 19, 1878, pp. 230–232.

The same individual as described and figured in *P. Z. S.*, 1876, p. 333, pl. 25, here decided to be *P. tharus* juv., in an abnormal phase of coloring.

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1875. Anon. Eggs and Nest of the Condor [Sarcorhamphus gryphus]. < *Oölogist*, i, 1875, p. 66.

1875. Eagle, C. H. Buzzards [Cathartidæ] in Maine. < *Forest and Stream*, iii, Jan. 14, 1875, p. 35[illegible].

1875. Gurney, J. H. [With reference to remarks on the races of the Condor, Ibis, 1875, p. 91.] < *Ibis*, 3d ser., v, 1875, pp. 269, 270.

1875. Hadfield, H. Instinct of Birds: Olfactory Power of the Vultures. < *Zoologist*, 2d ser., x, Mar., 1875, pp. 4373–4376.
On the question of the comparative power of the senses of sight and smell, the former being considered the one most employed in the search for food.

1875. Moses, J. T. C. Turkey Buzzards [Cathartes aura at Grand Menan Isl., Maine]. < *Forest and Stream*, v, Aug. 26, 1875, p. 36.

1876. Slerling, E. Queer fish, skunk and buzzards. < *Rod and Gun*, vii, Mar. 4, 1876, p. 359.
Account of tame *Cathartes aura.*

1877. [Coues, E.] Birds. < *The Mirror* (Baltimore, Md.), June 1, 1877.
Editorial extracts from the "Birds of the Northwest", relating to certain North American *Falconidæ* and *Cathartidæ.*

1877. [Coues, E.] Birds. < *The Mirror* (Baltimore, Md.), July 1, 1877, p. 4.
Editorial extracts from the "Birds of the Northwest", relating to certain *Cathartidæ.*

1877. [Coues, E.] Birds. < *The Mirror* (Baltimore, Md.), Aug. 1, 1877, pp. 4, 5.
Biography of *Cathartes aura*, from "Birds of the Northwest".

1877. Langdon, F. W. Occurrence of the Black Vulture or Carrion Crow [Cathartes atratus] in Ohio. < *Bull. Nutt. Ornith. Club*, ii, No. 4, Oct., 1877, p. 109.
Only record of such occurrence since Audubon's.

1878. ANON. Vultures and Turkey Buzzards. < *Forest and Stream*, xi, Oct. 31, 1878, p. 259.

Reprinted from "Florida Star."

1878. KITE, W. A Skunk eaten by Turkey-buzzards [Cathartes aura]. < *Am. Nat.*, xii, No. 12, Dec., 1878, p. 821.

1878. SMITH, G. STUART. The Condor [Sarcorhamphus gryphus]. < *Oölogist*, iv, No. 5, July, 1878, pp. 39, 40.

Compiled account of habits.

1880. ANON. The Condor [Sarcorhamphus gryphus]. < *Temperance Vedette* (newspaper of Terrill, Texas), Mar. 20, 1880.

Popular notice, copied from ———.

1880. RIDGWAY, R. Notes on the American Vultures (Sarcorhamphidæ), with Special Reference to their Generic Nomenclature. < *Bull. Nutt. Ornith. Club*, v, No. 2, Apr., 1880, pp. 77–84.

This is an attempt to fix the generic names, which, though comparatively few in number, have been almost inextricably involved, through the conflicting usages of authors who hold to different rules for the adoption of genera. By a kind of "process of elimination", the author determines the following names, with their types: 1, *Sarcorhamphus* Dum., 1806, for the Condor; 2, *Gyparchus* Gloger, 1842, for the King Vulture; 3, *Pseudogryphus* Ridgw., 1874, for the Californian Vulture; 4, *Cathartes* Ill., 1811, for the Turkey Buzzard; 5, *Catharista* Vieill., 1816, for the Black Vulture. The synonyms of each of these are given, with the references. Remarks are made upon *Sarcorhamphus æquatorialis* and *S. gryphus*, *Pseudogryphus californianus*, *Cathartes burrovianus* and *C. pernigra*.

Columbidæ.

1735. MOORE, J. Columbarium, etc.

Not seen.—This is the date of the orig. ed. of the famous work, which passed to many eds.; see the American, 1874. There is a verbatim reprint by W. B. Tegetmeier, London, 1879. Cf. *Ibis*, 1879, p. 219.

"The chief interest of Moore's 'Columbarium' consists in the careful descriptions of the different races of the domestic Pigeon as they existed in 1735, enabling a comparison to be made with those of the present day. The alterations produced by careful breeding, carried on for 150 generations, can thus be traced."

1759. KALM, P. Beskrifning på de vilda Dufvor, Som somliga år i så otrolig stor myckenhet Komma til de Södra Engelska nybyggen i Norra America. < *Kongl. Svensk. Vetensk.-Acad. Handl.*, xx, 1759, pp. 275–295.

The *Ectopistes migratorius* of authors.

1774. PORTAL, —. [Sur un Pigeon qui avoit deux anus; et sur un autre qui avoit une double trachée-artère.] < *Hist. de l'Acad Roy. des Sci.* pour l'année 1771, 1774, p. 38.

1765. ANON. A | Treatise | on | Domestic Pigeons; | comprehending | [etc., 31 lines.] | London: | Printed for and Sold by C. Barry, in Ingram Court, Fenchurch- | street. Sold likewise by P. Stevens, near Stationers Hall, Ludgate- | street; A. Webley, Holborn; and J. Walters, Charing-Cross. | M. DCC LXV. 1 vol. pp. i–xvi, 1–144, frontisp., and 13 pll.

1806. CAVANILLES, A. J. Natural History of the domestic Pigeons of Spain, particularly in the Province of Valentia. < *Tilloch's Philos. Mag.*, xxv, 1806, pp. 112–122.

From *Bibliothèque Physico-Économique*, No. 3, 1805. Classification, with summary characters of the various breeds, followed by an amplification of the same and general remarks on habits, &c.

1808–11. TEMMINCK, C. J. Histoire Naturelle | Générale | des Pigeons; | par C. J. Temminck, | Directeur de l'Académie Royale des Sciences et des Arts de Harlem, et Membre | de plusieurs Sociétés d'Histoire Naturelle. | Avec figures en couleurs, | peintes par Mademoiselle Pauline de Courcelles, | gravées, imprimées et retouchées sous sa direction. | — | Paris, | Garnery, Rue de Seine, Ancien Hôtel Mirabeau. | — | 1808[–1811]. 1 vol. folio. Prel. Title (Histoire Naturelle | des Pigeons | et des Gallinacés), 1 leaf; Temminck's Dedication to the King of Holland, 1 leaf; Title, 1 leaf; Introduction, pp. i–x; Temminck's Discourse on Pigeons, pp. 7–22; Text, pp. 23–41, 1–128, 1–30; Index, pp. i–xvj; Table, pp. i–iii; with 87 plates, in three series, 1–11; 1–25, 25 bis, 26–59; 1–16. [OR,]

1808–11. KNIP, *Madame.* Les Pigeons, | par Madame Knip, | née Pauline de Courcelles, | premier peintre d'Histoire Naturelle | de S. M. l'Impératrice Reine Marie-Louise. | Le texte par C. J. Temminck, | Directeur de l'Académie des Sciences et des Arts de Harlem, etc. | [Monogram.] | A Paris, |

Chez { M^{me} Knip, Auteur et Éditeur, Rue de Sorbonne, Musée des Artistes. |
Garnery, Libraire, Rue de Seine, Hôtel Mirabeau, n° 6. |

— | De l'imprimerie de Mame. | M. DCCC XI. 1 vol. folio. Prel. Title (Les Pigeons), 1 leaf; Knip's new Title, 1 leaf; Knip's Discourse on Pigeons, pp. 1–14; Text, pp. 23–41, 1–128, 1–30; Table, pp. i–iii; with 87 plates, in three series, 1–11; 1–25, 25 bis, 26–59; 1–16.

This work is one of the curiosities of literature. Owing to the cause célèbre between the two ostensible authors, we have in effect the same work by two different authors, with two different title-pages, above transcribed. By comparing the two preceding paragraphs, the difference between the two forms of the work may be perceived.

The work was originally published in 15 livraisons, 1808–1811. At the 9th livraison, 1811, 1808-11. TEMMINCK, C. J., *or* KNIP, *Madame*—Continued.

Madame Knip accomplished a piece of truly feminine finesse, by which she stole it from Temminck. To do this, she changed the cover-title of the 9th and following livraisons, and made sundry other alterations to suit her purpose. With the 15th livraison she furnished new title-pages of the whole work, substituted a new *Discours sur les Pigeons*, and directed the binder to suppress Temminck's title-pages, his entire Introduction, his Index, and his *Discours*. To account for the break in the pagination of the text between p. 23 and p. 41, she even went so far as to declare it was a typographical error. This was certainly a bold trick, regardless of consequences. But no such piracy as seems to have suited the lady's taste could hope to pass without detection; and Temminck immediately published an indignant réclamation, exposing and protesting against the fraud. What may have gone on under the surface would doubtless be even more curious than what has transpired, but the historical facts are sufficiently novel.

There is a unique copy of this work in the Library of the Philadelphia Academy, from the *Bibliothèque de J. B. Hazard*, preserving all the original cover-titles, and giving some manuscript notes explaining the whole affair. These I shall transcribe beyond.

The first eight livraisons appeared under the following cover-title, 1808-1810:—

Histoire | Naturelle | des Pigeons. | — | [. . .] Livraison. | — | A Paris, | chez Garnery, Rue de Seine, Ancien Hôtel Mirabeau. | — | De l'imprimerie de Mame Frères, | Rue de Pot-de-Fer, nº 14. | 1809 [1810].

Though the date on the title is 1808, that on livr. 1, 2, 3, 4, 5 is 1809, and perhaps none of the work appeared before 1809. The date on livraisons 6, 7, 8 is 1810. With the 9th livraison Madame Knip stole the work, altering the cover-title to—

Les Pigeons, | par Madame Knip, | née Pauline de Courcelles, | Premier Peintre d'Histoire Naturelle | de S. M. l'Impératrice Reine Marie-Louise. | Le texte par C. J. Temminck, | Directeur de l'Académie des Sciences et des Arts de Harlem, etc. | — | [. . .] Livraison. Prix 40 francs. | — | Chaque livraison, accompagnée de son texte, est composée de six figures en couleurs | d'après les dessins de l'Auteur, gravées, imprimées, et retouchées sous sa direction. | L'Histoire Générale des Pigeons aura quinze livraisons formant un volume. | A Paris, |
Chez { Mme Knip, Auteur et Éditeur, Rue de Sorbonne, Musée des Artistes.
Garnery, Rue de Seine, Hôtel Mirabeau, nº 6. } | — | De l'imprimerie de Mame. | M. DCCC XI.

The unique copy examined is invaluable in containing Hazard's msc. "Notes Bibliographiques." I think it advisable to publish these notes, as further explaining the transaction. It is to be understood that this copy forms two volumes—one, Temminck's, without the main text, and with the plates uncolored, but with all the suppressed pieces of the work; the other, Knip's, with the substituted titles and discourse, the main text, and the plates colored. (The plates were issued in two series, colored and plain.) The following is Hazard's MS.:—

"NOTES

Bibliographiques sur l'exemplaire de l'Histoire Naturelle des Pigeons, que j'ai dans ma Bibliothèque.

"Cet exemplaire est unique, non seulement par les différentes pièces qu'il contient, qui l'ont fait diviser en deux volumes; mais encore par la beauté des épreuves des doubles figures, et par les portraits qui y ont été ajoutés.

"On sait que cet ouvrage a été rédigé, pour le texte, par *M. Temminck*, et pour les figures, par *Mademoiselle Pauline de Courcelles*, depuis *Madame Knip;* que ce ne devait être que la première partie d'un ouvrage plus considérable (*l'Histoire Générale des Pigeons et des Gallinacés*), qui devait avoir trois volumes; que d'après les arrangemens particuliers des auteurs, *Madame Knip* est demeurée proprietaire de l'ouvrage des Pigeons; qu'elle y a fait des suppressions et des additions pour ne conserver que ce qui était relatif aux Pigeons, et qu'il n'y a eu qu'un petit nombre d'exemplaires (douze) delivrés au Public, tels qu'ils étaient sortir des mains de *M. Temminck*, d'après le plan général de l'ouvrage; on trouvera ces détails dans la réclamation de M. Temminck, . . .

"Voici la note des pièces qui composent les deux volumes.

"1er Volume. [Temminck's.]

"1º. Faux titre général de l'ouvrage *Histoire Naturelle des Pigeons et des Gallinacés*, au verso est jointe une lettre autographe de *Madame Knip*, née *Pauline de Courcelles*, qui m'envoie les pièces qui ont été supprimées: un feuillet. [La lettre a été retirée plus tard.—E. C.]

"2º. Réclamation de *M. Temminck*, contre *Madame Knip*, pièce manuscrite, extraite du tome troisième de *l'Histoire Naturelle générale des Pigeons et des Gallinacés*, en trois volumes in-8º, 1813-1815: une feuille.

"3º. Avis au Relieur sur les pièces à supprimer et à remplacer par d'autres: un feuillet.

"4º. Faux titre général et titre de l'ouvrage. . . . Ces titres ont été supprimés plus tard: une feuille, 4 pages.

"5º. Un très beau portrait de Louis Napoleon, roi de Hollande, dessiné par Grégorius

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d'après la buste de *Casteillier*, gravé par *L. C. Ruotte*, et auquel *M. Temminck* avait dédié son ouvrage: un feuillet, 2 pages.

"6°. Épître dédicatoire de *M. Temminck*, au roi de Hollande, supprimée à tous les exemplaires, par l'auteur lui-même: un feuillet, 2 pages.

"7°. Introduction de *M. Temminck*, sur l'ordre générale des Gallinacés; sur la dernière page, est *l'extrait du Rapport fait à l'Institut national, classe des sciences physiques et mathématiques*, par *MM. Lacépède et Cuvier*, sur les figures coloriées de *Mademoiselle Pauline de Courcelles.* L'introduction étant générale a été supprimée dans l'histoire des Pigeons: 10 pages.

"8°. Discours sur l'ordre des Pigeons: 16 pages. Ce discours, paginé 7–22, devait faire suite aux 6 pages du titre et de l'épître dédicatoire; l'introduction qui le précède y avait été ajoutée après l'impression. Il a aussi été supprimé et remplacé par un autre, extrait de celui-ci, que l'on trouvera indiqué dans le volume suivant.

"9°. 87 planches des Pigeons, figures noires, avant la lettre, exemplaire d'amateur; épreuves que *Madame Knip* a bien voulu me choisir et sur lesquelles elle a mis, elle-même, les noms des Pigeons, au crayon. J'ai divisé les trois sections par des titres séparés: Les Colombars, Les Colombes, Les Colombi-Gallines.

"10°. Index (ornithologique): 16 pages. Cet Index a aussi été supprimé.

"11°. Table: une feuille. Cet Table indiquant les pièces supprimées, a été suprimé aussi et réimprimé pour le volume suivant.

"12°. Enfin, j'ai conservé à ce volume, soit en tête, soit à la fin, les titres-enveloppes des huit premières livraisons, qui portent le premier titre d'Histoire naturelle des Pigeons, sous les dates 1809–1811. Ce n'est qu'à la neuvième livraison que Madame Knip les a changés ainsi qu'ils sont dans le second volume.

"2^e Volume. [Knip's.]

"1°. Nouveau Faux-Titre, Les Pigeons, et Titre du volume . . .; un feuille, 4 pages.

"2°. Un très beau portrait, en couleurs, de Marie-Louise, archiduchesse d'Autriche, Impératrice de France, Reine d'Italie, dessiné d'après le buste de *Bosio*, par *Durand Duclos*, gravé par *L. C. Ruotte:* L'Ouvrage lui avait été présenté par *Madame Knip*, et avait valu à cette derniere le titre du premier peintre d'Histoire Naturelle de Sa Majesté. Ce portrait a été ajouté par moi.

"3°. Le nouveau *Discours sur l'ordre des Pigeons*, 14 pages; on trouve sur la quatorzième l'extrait du Rapport de l'Institut qui, dans le volume précédent, est à la suite de l'Introduction supprimée.

"4°. Les 87 figures coloriées des Pigeons formant les trois séries, épreuves que *Madame Knip* a bien voulu me choisir, elle-même; elles sont placées en face de leurs descriptions, dans le texte.

"5°. Le texte, commençant page 23, avec les Columbars, première division, et faisant suite au Discours sur l'ordre des Pigeons, du volume précédent, finit page 41; quelques erreurs typographiques dans la pagination ont été corrigées avec soin, à la plume. Le texte recommence page 1, avec les Colombes, deuxième division, et se termine page 128. Il recommence encore page 1, avec les Colombi-Gallines, troisième division, et finit page 30.

"La différence de pagination du texte avec les pièces liminaires de ce volume, résultant du pièce supprimée, du volume précédent, a été indiqué par *Madame Knip* comme une faute d'impression, au verso du faux titre.

"6°. La table, qui a été réimprimée, et qui n'indique plus, en tête la Dédicace et l'Introduction, et à la fin l'Index ornithologique, qui ont été supprimés.

"7°. J'ai conservé aussi, à ce volume, comme au précédent, soit en tête, soit à la fin, les titres-enveloppes du livraison 9 à 15 et dernière, sous la date de 1811, qui diffèrent de ceux du précédent, par le titre nouveau, par plus d'étendue et plus d'ornemens typographiques."

The errors of pagination in the first set of pages, from 37 to 41, have been corrected so neatly with the pen in this copy that I cannot make out what they were. The series of plates is consecutive, 1 to 86, with 25 bis = 87; but pl. xxxiii is wrongly numbered xxxi, and pl. xlvii is numbered lxvii. The following is a list of the plates—those with the asterisk being Temminck's species:—

I. Colombars.—Pl. 1, 2, *Columba militaris**; 3, *C. australis;* 4, *C. psittacea**; 5, 6, *C. aromatica;* 7, *C. calva**; 8 9, *C. abyssinica;* 10, 11, *C. vernans.*

II. Colombes.—Pl. 1, *Columba spadicea;* 2, *C. palumbus;* 3, 4, *C. oenea;* 5, *C. arquatrix**; 6, *C. armillaris**; 7, *C. littoralis**; 8, *C. chalcoptera;* 9, *C. cristata**; 10, *C. cariba;* 11, *C. oenas;* 12, *C. livia;* 13, *C. leucocephala;* 14, *C. speciosa;* 15, *C. portoricensis**; 16, *C. guinea;* 17, *C. madagascariensis;* 18, *C. gymnoptalmos;* 19, *C. franciœ;* 20, *C. rubricapilla;* 21, *C. auricularis**; 22, *C. elegans**; 23, *C. cincta**; 24, *C. rufina**; 25, 25 bis, *C. aurita**; 26, *C. javanica;* 27, *C. jambos;* 28, 29, *C. violacea**; 30, *C. melanocephala;* 31, *C. larvata**; 32, *C. holosericea*; 33, *C. superba**; 34, 35, *C. purpurata;* 36, *C. tympanistra**; 37, *C. cœrulea**; 38 39,

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C. afra; 40, *C. bitorquata**; 41, *C. vinacea**; 42, *C. turtur;* 43, *C. tigrina**; 44, *C. risoria;* 45, *C. cambayensis;* 46, *C. alba**; 47, *C. malaccensis;* 48, 49, *C. migratoria;* 50, *C. carolinensis;* 51, *C. dominicensis;* 52, *C. maugeus**; 53, 54, *C. capensis;* 55, *C. erythroptera;* 56, *C. mystacea**; 57, *C. godefrida**; 58, *C. cinerea**; 59, *C. squamosa**.

III. Colombi-Gallines.—Pl. 1, *Columba coronata;* 2, *C. nicobarica;* 3, *C. cyanocephala;* 4, *C. montana;* 5, 6, *C. martinica;* 7, *C. erythrotorax**; 8, 9, *C. cruenta;* 10, *C. frontalis**; 11, *C. carunculata**; 12, *C. talpacoti**; 13, 14, *C. passerina;* 15, *C. hottentota**; 16, *C. minuta.*

There is a continuation of this work, by Knip, text by Prévost, 1838–4–, forming ostensibly a second volume.

1813–15. TEMMINCK, C. J. Histoire Naturelle Générale | des | Pigeons | et des | Gallinacés, | par | C. J. Temminck, | Chevalier de l'ordre Impérial de | la Réunion, Directeur de la | Société des Sciences à Harlem, | et Membre de plusieurs | sociétés d'histoire naturelle. | Ouvrage en trois volumes. | Accompagné de | Planches Anatomiques. | — | Tome Premier [Second, Troisième]. | — | — | à Amsterdam, | chez J. C. Sepp & Fils, | et à Paris, | chez C. Dufour, | 1813 [1815]. | à l'Imprimerie de H. O. Brouwer, heerenmarkt | No. 5. à Amsterdam. 3 vols. 8vo. Vol. I, 1813, frontisp., pp. 1–499 + 1 p. Vol. II, 1813, pp. 1–477 + 1 p. Vol. III, 1815, 1 p. l., pp. 1–757 + 1 p., pll. i–xi.

The 1st vol. treats of the Pigeons, the other two of the *Gallinaceæ* (incl. *Tinamidæ*, etc.); at end of 1st and 3d vol. is an "index", or synopsis of the species treated, with characters, synonymy, and habitat of each. The plates bound at end of 3d vol. pertain to vols. ii and iii; the frontisp. of vol. i to the *Columbæ*. This is a very well known and "standard" treatise.

Vol. I is really the text of Temminck's plates, *Hist. Nat. Génér. des Pigeons*, folio, Paris, 1808–1811 (for circumstances of the case see above). *Columba militaris*, p. 39; *psittacea*, p. 47; *aromatica* var., p. 53: *calva*, p. 63; *arquatrix*, p. 93; *armillaris*, p. 97; *littoralis*, p. 99; *cristata*, p. 108; *picazuro*, p. 111; *maculosa*, p. 113; *gymnophtalmos* (sic), p. 225; *auricularis*, p. 236; *elegans*, p. 240; *cincta*, p. 243; *rufina*, p. 245; *aurita*, p. 247; *violacea*, p. 260; *larvata*, p. 267; *holosericea*, p. 269; *mystacea*, p. 275; *superba*, p. 277; *tympanistria*, p. 287; *cærulae* (sic), p. 290; *geoffroii* (sic), p. 297; *cinerea*, p. 299; *bitorquata*, p. 301; *vinacea*, p. 303; *picturata*, p. 315; *tigrina*, p. 317; *alba*, p. 333; *squamosa*, p. 336; *maugei*, p. 363; *erythrotorax* (sic), 405; *carunculata*, p. 415; *talpacoti*, p. 421; *picui*, p. 435; *miniata*, p. 460; *brunnea*, p. 475—"*mihi*".

Vol. II. *Pavo cristatus primus*, p. 27; *Gallus sonneratii*, p. 246; *morio*, p. 253; *lanatus*, p. 256; *furcatus*, p. 261; *ecaudatus* (sic), *primus*, p. 267; *macartneyi*, p. 273; *Phasianus colchicus hybridus*, p. 319; *torquatus primus*, p. 326; *satyrus*, p. 349; *Lophophorus refulgens*, p. 355; *Polyplectron chinquis*, p. 363; *Argus giganteus*, p. 410—"*mihi*".

Vol. III. *Pauxi galeata*, p. 1; *Pauxi mitu*, p. 8; *Crax rubra*, p. 21; *C. carunculata*, p. 44; *Penelope parrakoua*, p. 85; *Tetrao saliceti*, p. 208; *Pterocles arenarius*, p. 240; *Pt. bicinctus*, p. 247; *Pt. quadricinctus*, p. 252; *Pt. setarius*, p. 256; *Pt. tachypetes*, p. 274; *Syrrhaptes pallasii*, p. 282; *Perdix clamator*, p. 298; *adansonii*, p. 305; *longirostris*, p. 323; *thoracica*, p. 335; *gularis*, p. 401; *oculea*, p. 408; *dentata*, p. 419; *borealis*, p. 436; *sonnini*, p. 451; *Coturnix perlata*, p. 470; *australis*, p. 474; *textilis*, p. 512; *excalfactoria*, p. 516; *grisea*, p. 523; *novæ guineæ*, p. 524; *Cryptonix* (sic) *coronatus*, p. 526; *rufus*, p. 534; *Tinamus rufescens*, p. 552; *maculosus*, p. 557; *tao*, p. 569; *undulatus*, p. 582; *adspersus*, p. 585; *obsoletus*, p. 588; *lataupa*, p. 590; *strigulosus*, p. 594; *nanus*, p. 600; *Hemipodius nigrifrons*, p. 610; *pugnax*, p. 612; *nigricollis*, p. 619; *thoracicus*, p. 622; *tachydromus*, p. 626; *maculosus*, p. 631; *fasciatus*, p. 634; *Turnix hottentottus*, p. 636—"*mihi*".

The majority of all the birds in these three volumes are thus described as new; a large part of the rest are credited to Latham. Temminck's names are barbarous in many cases, most of those given in the French vernacular being horrid; but that has always been the style with the French ornithologists.

Vol. III concludes with a statement from Temminck of the circumstances under which his folio work on the Pigeons appeared—which is not only important as a bibliographical matter, but delightful as a bit of gossip. In explanation both of the present publication and of the folio work on the Pigeons, I here give the substance of his grievance as set forth by him:

The present work, says Temminck, was intended to appear in folio, with colored plates. The first volume of the folio edition appeared at Paris in 1808 and was completed in 1811, under the direction of Mlle. Pauline de Courcelles, afterward Madame Knip, a very accomplished natural history artist, all of whose works attest her distinguished talents. This lady was charged with the supervision of the engraving, 47 drawings having been made by her from specimens of Pigeons in the Paris Museum, and 40 others copied by her from M. Prêtre's designs, the latter made under Temminck's supervision. The first livraison appeared in 1808, with the same general title as the present edition; Mlle. de Courcelles being properly credited with her part of the work in the following terms: "Aves figures en couleurs peintes par Mademoiselle Pauline de Courcelles, gravées, imprimées et retouchées sous sa direction."

1813-15. TEMMINCK, C. J.—Continued.

No sooner was the work completed than Madame Knip, "the ingrate", saw fit to replace the title with another in which she appeared as the author, her concoction being in the following terms: ". . . les Pigeons par Madame Knip, née Pauline de Courcelles, première peintre d'histoire naturelle de S. M. l'Impératrice et Reine. Le texte par C. J. Themminck [sic].—Se vend à Paris, chez l'auteur, Rue Serbonne. Musée des Artistes." She suppressed 40 pages of text, which would have told against her, and did the same for the 16 double-column pages of the Latin index. The work thus mutilated was presented to Queen Marie Louise, and secured for Mad. Knip some favors her ambition had long coveted. Nevertheless, to keep Temminck in the dark, the lady had the wit to send him some perfect copies, properly titled. It had been agreed that he was to have eight copies; these eight, he says, and four others which bear the date 1808 and have the Latin index, "sont les seuls approuvés par moi"—whence it appears that there are only twelve perfect and authorized copies of the folio work extant! The aggrieved author found out the artful woman's trick when he went to Paris to publish the part of the work relating to the *Gallinæ;* but it was too late. He could obtain no redress; the plot was backed up by royalty; journalists refused his "réclamations", even his reply to an article which the lady published—and which, I suppose, if I could lay my hands on it, would tell quite another story. Such, in brief, is Temminck's own version of the affair which determined him to publish the present 8vo ed. For further particulars relating to the folio work, see under that head, 1808-11.

1824. BOITARD, [P.] *and* CORBIÉ, —. Les Pigeons | de | Volière et de Colombier, | ou | Histoire Naturelle et Monographie | des Pigeons domestiques, | renfermant | la nomenclature et la description de toutes les races | et variétés constantes connues jusqu'à ce jour; la | manière d'établir des colombiers et volières; d'élever, | soigner les pigeons, etc., etc. | Dédiée a son Altesse Royale | Madame la Duchesse de Berry, | par MM. Boitard et Corbié. | Avec vingt-cinq figures de pigeons peints d'après nature. | A Paris, | Chez
{ Audot, Libraire-Éditeur, rue de Maçons-Sor- | bonne, nº. 11. |
{ Corbié, Oiselier de S. A. R. madame la duchesse | de Berry, quai de la Mégisserie, nº. 66. |
— | 1824. 1 vol. 1 p. l., pp. i-viij, 1-240, pll. 1-25, + 1.

Histoire générale des pigeons—Origine des pigeons domestiques—Du croisement des races—Nourriture—Accouplement—De la ponte et de l'incubation—Des pigeonneaux—Du jeune pigeon et de la connaissance des sexes—Maladies des pigeons—Du colombier—Manière de peupler le colombier—Soins à donner au colombier—De la colombier—Ustensiles—De la volière—Soins à donner à la volière—Dégâts et utilité des pigeons.

Partie 2e, Monographie des Pigeons de volière.—Pigeons de la première-vingt-quatrième race.—Colombes tourterelles.—Tourterelle des bois, à collier, et blanche.

1825. DESM[ARE]ST, [A. G.] Les Pigeons de volière et de Columbier, . . .; par MM. Boitard et Corbie. . . . < *Féruss. Bull.*, 2e sect., iv, 1825, pp. 258-260.

1827. AUDUBON, J. J. Notes on the Habits of the Wild Pigeon of America, Columba [Ectopistes] migratoria. < *Edinb. Journ. Sci.*, vi, 1827, pp. 257-265. (*Froriep's Notizen*, xvii, 1827, col. 257-262.)

Read before the Roy. Soc. Edinb., Feb. 19, 1827.

1827. L[UROTH], S. G. Observations sur les habitudes du Pigeon sauvage d'Amérique (Columba [Ectopistes] migratoria); par J.-J. Audubon. . . . < *Féruss. Bull.*, 2e sect., xii, 1827, pp. 125, 126.

Précis, tiré de l'*Edinb. Journ. of Science*, vi, avril 1827, pp. 257-265.

1828. ANON. Sur les Columba domestica, livia et Amaliae; par M. Brehm. . . . < *Féruss. Bull.*, 2e sect., xiv, 1828, pp. 260, 261.

Précis, tiré de l'*Isis*, xxi, 1828, pp. 136-141.

1828. BREHM, C. L. Ueber Columba domestica, livia et Amaliae. < *Oken's Isis*, Bd. xxi, 1828, pp. 136-141.

1829. [EDITORIAL.] Notice respecting a Pigeon which continued to live two days without Brain and upper part of Spinal Marrow. < *Edinb. New Philos. Journ.*, vii, 1829, p. 372.

Note on M. Desportes's communication to Acad. Sci. Paris.

1829. FLEMING, [J.] Description of the Passenger Pigeon [Ectopistes migratorius]. < *Loudon's Mag. Nat. Hist.*, i, 1829, p. 488.

1829. "J. M." Columba [Ectopistes] migratoria (the Wild Pigeon). < *Loudon's Mag. Nat. Hist.*, ii, 1829, pp. 369, 370.

Quotations from the Rochester, N. Y., *Genesee County Register*, Dec., 1828; *Susquehanna County Register*, May, 1829, and *New York Med. and Phys. Journ.*, ii, p. 210.

1832. ANON. Mode of decoying Wild Pigeons [Ectopistes migratorius] in New England. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 452, 453.

From *Silliman's Journal*.

1833. HUNT, J. [Note on the Breeding of the Passenger Pigeon (Ectopistes migratorius, Swains.), in the Society's Menagerie.] < *P. Z. S.*, i, 1833, p. 10.

1835. ANON. Passenger Pigeon [Ectopistes migratorius, at Baffin's Bay, lat. 73½° N.]. < *Edinb. New Philos. Journ.*, xx, 1835, p. 209.

From *Ross's Voyage*.

1835. ANON. The Carrier-Pigeon. A Society of Pigeon Fanciers, at Ghent, give an Annual Prize for the Best Carrier Pigeon. < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 619.

1835. SELBY, P. J. The | Naturalist's Library. | Edited by | Sir William Jardine, Bart., | F. R. S. E., F. L. S., etc., etc. | Vol. IX. | — | Ornithology. | Pigeons. | By Prideaux John Selby, Esq., | F. R. S. E., F. L. S., M. W. S., etc., etc. | — | Edinburgh: | W. H. Lizars, [etc.] [1835.] 1 vol. sm. 12mo. Portrait of Pliny, eng. col'd title, contents, 1 leaf, pp. 17–252, cuts, pll. 1–30 (+ portrait and vignette = 32 pll.).

Being Vol. V of the general arrangement. "The Pigeons, . . . are now, in accordance with their true affinities, admitted into the order of the Rasores, or Gallinaceous Birds, of which they form one of the five great groups or divisions, the other four being represented by the Pavonidæ, Tetraonidæ, Struthionidæ, and Cracidæ"—in spite of which opening, the book continues well.—Pl. 1, *Vinago aromatica;* 2, *V. oxyura;* 3, *Ptilinopus purpuratus;* 4, *P. monachus;* 5, *P. cyanovirens;* 6, *Carpophaga* (Selby, p. 112) *magnifica;* 7, *C. oceanica;* 8, *Columba phasianella;* 9, *C. spadicea;* 10, *C. dilopha;* vignette, *C. palumbus;* 11, *C. œnas;* 12, *C. livia;* 13, var. *tremula latecauda;* 14, *C. cucullata jacobina;* 15, var. *gutturosa subrubicunda;* 16, *C. turcica;* 17, *Turtur risorius;* 18, *T.? lophotes;* 19, *Ectopistes migratoria;* 20, *E.? capensis;* 21, *Phaps* (Selby, p. 194) *chalcoptera;* 22, *Chœmepelia* (sic) *talpicoti* (sic); 23, *Peristera tympanistria;* 24, *P. jamaicensis* (named *rufaxilla* on pl.); 25, *P. martinica* (named *cuprea* on pl.); 26, *P. larvata;* 27, *Geophilus* (Selby, p. 214) *cyanocephalus;* 28, *G. caruncalatus;* 29, *G. nicobaricus;* 30, *Lophyrus coronatus.* "Miscellaneous observations on the rearing, feeding, and management of domestic pigeons" concludes the volume.

1838–4–. KNIP, *Madame, and* PRÉVOST, F. Les Pigeons, | par Madame Knip, | née Pauline de Courcelles, | le texte par Florent Prévost, | Aide Naturaliste et Chef des Travaux Zoologiques au Muséum | d'Histoire Naturelle. | — | Tome Second. | — | A Paris, | Chez { M^{me} Knip, auteur des dessins, et éditeur, Rue de Bac, N^{o} 17. | Bellizard, Dufour et C^{ie}, Libraires, Rue de Verneuil, 1 bis. | — | Typographie de Firmin Didot Frères, Rue Jacob, 56. [n. d. 1838–184–.] 1 vol. folio. Prel. title, 1 leaf; title, 1 leaf; table, 1 leaf (2 pages); text, pp. 1–113. Plates, 1–60, colored.

This is ostensibly Vol. II of the Temminck-Knip work; but, appearing many years afterward, with text by another person, it is in effect a different work altogether, though in continuation of the same subject, and prepared in the same style. The volume examined in the Libr. Phila. Acad. is bound uniform with Hazard's unique copy of Temminck-Knip; but unfortunately the cover-titles of the livraisons are not preserved, so that I cannot give the dates. It stands announced for 15 livraisons of 4 plates each, and, according to Engelmann, livrs. 1–12 appeared 1838–43.

The following is a list of the plates:

Pl. 1. *Columba puella.* 2. *leucotis.* 3. *zoeæ.* 4. *porphyria.* 5. *humeralis.* 6. *reinwardtsii.* 7. *humilis.* 8. *cyanovirens.* 9. *rufigaster.* 10. *sieboldii.* 11. *gularis.* 12. *olax.* 13. *lophotes.* 14. *pulchella.* 15. *pinon.* 16. *janthina.* 17. *viridis.* 18. *denisea.* 19. *dilophus.* 20. *dussumieri.* 21. *perlata.* 22. *boliviana.* 23. *xanthura.* 24. *oceanica.* 25. *magnifica.* 26. *venusta.* 27. *gelastes.* 28. *leucomela.* 29. *radiata.* 30. *oxyura.* 31. *modesta.* 32. *aymera.* 33. *scripta.* 34. *rosacea.* 35. *picturata.* 36. *ruficeps.* 37. *capistrata.* 38. *capellei.* 39. *picui.* 40. *luctuosa.* 41. *macquarii.* 42. *superba.* 43. *laurivora.* 44. *locutrix.* 45. *histrionica.* 46. *manadensis.* 47. *forsterii.* 48. *cruziana.* 49. *sphenura.* 50. *leuconota.* 51. *histrionica.* 52. *pha-*

1838–4–. Knip, *Madame, and* Prévost, F.—Continued.

sianella. 53. *monacha.* 54. *hyogaster.* 55. *Colombigallina linearis.* 56. *Columba mullerii.* 57. *rivolii* (nobis). 58. *plumifera.* 59. *nuna.* 60. *mayeri.*

In the text the species are only given under their French vernacular names. But the technical names are graven on the plates, and also given in the table.

1839. Weissenborn, [W.] [Letter relating to a Pigeon destitute of Organs of Vision. < *P. Z. S.*, vii, 1839, p. 175.

1840. Hunter, J. On a Secretion in the crop of breeding Pigeons, for the nourishment of their young. < *Obs. Anim. Œcon.*, Amer. ed., 1840, pp. 149–151.

Orig. ed., 1786.

1844. Cabot, S., Jr. [Note on Columba trudeaui.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1844, p. 183.

1847. McCall. G. A. Description of a supposed new species of Columba [solitaria], inhabiting Mexico, with some account of the habits of the Geococcyx viaticus, Wagler. < *Proc. Acad. Nat. Sci. Phila.*, iii, July, 1847, pp. 233–235.

1847. McCall, G. A. Description of a supposed new species of Columba [solitaria] inhabiting Mexico. < *Am. Journ. Sci.*, iv, 1847, p. 421.

From *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, p. 233.

1850. [Kirtland, J. P.] Wild Pigeon—Ectopistes migratoria. < *The Family Visitor*, i, No. 17, 1850, p. 133.

1,285 netted one day near Circleville, Ohio.

1851. Eaton, J. M. Dedicated to the young and inexperienced fancier | of the Almond Tumbler. | — | A | Treatise | on the art of | Breeding and Managing | the | Almond Tumbler. | — | By John Matthews Eaton | — | [Quotation.] | — | Published for the author, | 7, Islington Green, London. | — | 1851. 1 vol. 8vo. pp. i–vi, 7–49 + 1 p. Followed by Notes on a treatise on the art of breeding and managing the Almond Tumbler. By an old Fancier. pp. i–viii.

1851. Hartlaub, "P." [*i. e.*, G.] Sur une nouvelle espèce de Colombe [Zenaida innotata] de Chili. < *Rev. et Mag. de Zool.*, iii, 1851, p. 74.

1852. Eaton, J. M. Dedicated to the young and inexperienced Fancier | of tame, domesticated, and fancy Pigeons. | — | A | treatise | on the art of | breeding and managing | Tame, Domesticated, and Fancy Pigeons, | carefully compiled from the best authors, with observations, containing | all that is necessary to be known of tame, domesticated, and fancy pigeons. | — | By John Matthews Eaton, | Author of the Almond Tumbler. | — | [Quotation.] | — | Published for, and to be obtained of, the author, | 7 Islington Green, London. | — | 1852. 1 vol. 8vo. pp. i–xxii, 23–88.

This is an annotated reprint of John Moore's Columbarium (London, 1735), the full title-page of which makes p. ix of the present tract, the preceding pp. being Eaton's preliminary matter. His annotations are in the form of foot-notes throughout the tract, sometimes occupying the whole page, as pp. 59, 60, 61. Moore's tract ends at p. 80, and Eaton's concludes the vol.

1852. Eaton, J. M. [Plates accompanying a treatise on Fancy Pigeons, by J. M. Eaton.] 4to and fol. size. London: published Dec. 8, 1852. 6 plates, colored.

No title-page; plates not numbered. 1, Almond Tumbler, 4to; 2, Black Mottle, 4to; 3, Bald Head, 4to; 4, Beard, 4to; 5, Carrier, folio, folded. 6, Powter, folio, folded. I suppose these plates belong to Eaton's treatise of same date, *q. v.*, but there is nothing to show this.

1852. Woodhouse, S. W. Description of a new species of Ectopistes [marginella]. < *Proc. Acad. Nat. Sci. Phila.*, vi, 1852, pp. 104, 105.

1854–55. Bonaparte, C. L. Coup d'œil sur l'ordre des Pigeons. < *Compt. Rend. de l'Acad. Sci.*, xxxix, 1854, pp. 869–880, 1072–1078, 1102–1112; xl, 1855, pp. 15–24, 96–102, 205–215.

1854.—*Phalacrotreron*, p. 872; *Butreron, Crocopus*, p. 873; *Osmotreron*, p. 874; *Leucotreron, Thouarsitreron, Lamprotreron*, p. 876; *L. apicalis*, p. 876; *Cyanotreron, Ramphiculus, Jotreron, Kurutreron, Omeotreron*, p. 878; *O. batilda*, p. 878; *Globicera*, p. 1072; *G. tarrali, G. sundevalli,* 1854–55. **Bonaparte, C. L.**—Continued.

G. rubricera, "Gray", p. 1073; *Carpophaga chalybura*, *C. ochropygia*, *Ptilocolpa*, p. 1074; *Pt. carola*, *Pt. grieseipectus*, "Gray", p. 1075; *Ducula paulina*, "Temm.", *D. basilica*, "Temm.", *Hemiphaga*, p. 1076; *Myristicivora grisea*, "Gray", p. 1078: *Leucomeloena*, *Trocaza*, *Turturoena*, p. 1104; *Stictoenas dilloni*, p. 1105; *Palumbœnas*, p. 1107; *Columba* (*Chlorœna*) *albilinea*, "Gray", p. 1108; *Chlorœnas spilodera*, "Gray", p. 1109; *Crossophthalmus reichenbachi*, p. 1110; *Macropygia doreya*, p. 1111; *M. carteretia*, *Turacœna*, *Reinwardtœna typica*, p. 1112.

1855.—*Streptopelia*, p. 17; *Aplopelia*, p. 18; *Chalcopelia*, p. 19; *Chamaepelia granatina*, *C. albivitta*, *C. trochila*, *C. amazilia*, p. 21; *Talpacotia*, p. 22; *Chamaepelia rufipennis*, Gray, *Ch. godinœ*, p. 22; *Columbula* p. 22; *Metriopelia*, *M. gymnops*, Gray, p. 23; *M. inornata*, Gray, p. 24; *Scardafella*, *S. inca*, *Uropelia*, p. 24; *Zenaidura*, *Z. marginella*, p. 96; *Zenaida bimaculata*, "Gray", *Z. hypoleuca*, Gray, *Z. ruficauda*, Gray, p. 97; *Z. pentheria*, *Z. stenura*, p. 98; *Leptoptila verreauxi*, *L. dubusi*, p. 99; *Geotrygon chrysia*, p. 100; *G. bourcieri*, *G. saphirina*, p. 101; *Osculatia*, *Starnoenas*, p. 102; *Pampusana*, p. 207; *Chalcophaps augusta*, p. 209; *Chrysauchœna*, p. 210; *Phapitreron amethystina*, p. 214; *Globicera microcera*, *Ducula pistrinaria*, p. 215.—Tableau! p. 212. (Coup de théâtre!! "À moi la cargaison"!!!)

1854. **Bonaparte, C. L.** Coup d'œil sur les Pigeons. < *Rev. et Mag. de Zool.*, vi, 1854, pp. 680, 681.

Résumé de la commencement de la troisième partie de son ouvrage présenté à l'Acad. de Paris, séance du 11 déc. 1854.

1854. **Desportes, E. H.** Observation de longévité d'un pigeon. < *Ann. des Sci. Nat.*, 4e sér., ii, 1854, pp. 249–254.

1855. **Greenleaf, P. H.** Observations on the Flight of the American Passenger Pigeon [Ectopistes migratorius], at Madison, Ind., March, 1855. < *Proc. Bost. Soc. Nat. Hist.*, v, 1855, pp. 181, 182.

1856. [**Billings, E.**] On the Pigeon, (Ectopistes Migratoria.) < *Canad. Nat. and Geol.*, i, June, 1856, pp. 168–176.

Compilation from Wilson.

1856. **Bonaparte, C. L.** Additions et Corrections au Coup d'œil sur l'Ordre des Pigeons, et à la partie correspondante du Conspectus Avium. < *Compt. Rend. de l'Acad. Sci.*, xliii, 1856, pp. 833–841, 942–949.

Thouarsitreron minor, *Drepanoptila*, p. 834; *Ducula concolor*, *Palumbus excelsus*, p. 836; *Trocaza bouvryi*, p. 837; *Columba eversmanni*, p. 838. Voir 1854–55, même auteur.

1856. **Bonaparte, C. L.** Additions et corrections au Coup d'œil sur l'ordre des Pigeons et à la partie correspondante du Conspectus Avium. < *Rev. et Mag. de Zool.*, viii, 1856, p. 535, et pp. 538, 539.

Voici seulement la Note qui précède ces additions, et la conclusion générale.

1857–58. **Bonaparte, C. L.** Iconographie | des Pigeons | non figurés par Mme Knip (Mlle Pauline de Courcelles) | dans les deux volumes de MM. Temminck et Florent Prevost | par Charles-Lucien Bonaparte | — | Ouvrage servant d'illustration a son | Histoire Naturelle des Pigeons | — | Paris | P. Bertrand, Libraire-Éditeur | Rue de l'Arbre-sec, 22 | 1857 [1858]. 1 vol. in-fol. grand jésus. Faux titre, 1 feuillet; titre, 1 feuillet; table des matières, 1 feuillet; avis de l'éditeur, 1 feuillet; lettre à Moquin-Tandon, 4 pages; Clavis systematis et Conspectus generum, 6 pages; 55 planches coloriées renfermant 66 figures, avec le texte non paginé, 59 feuillets. (Livraisons i–xii, 1857, 1858.)

"La quatrième livraison de notre Iconographie venait de paraître, lorsque la mort a frappé son savant auteur. Il n'y avait donc que 20 planches de publiées; mais nous avions entre les mains 35 lithographies prêtes, dont plusieurs déjà coloriées, et tous les dessins originaux, approuvés par le Prince, qui avaient servi ou devaient servir de modèles au coloriage. Nous avions aussi les descriptions correspondantes, les unes imprimées, les autres en cours d'épreuves. . . . Nous nous sommes trouvé possesseur des éléments de plus de sept nouvelles livraisons. Nous les avons publiées successivement, dans l'espace de dix mois. . . . M. Moquin-Tandon a bien voulu revoir toutes les épreuves, texte et planches. Réunies aux quatre premières, ces livraisons composent un total de 55 planches, renfermant 66 figures. . . . Comme trois de nos planches renferment deux espèces, et que nous avons donné dans la seconde livraison la *Lettre à M. Moquin-Tandon*, et dans la sixième le *Clavis Systematis*, le *Conspectus generum* et le *Conspectus geographicus*, les figures se sont trouvées en avance sur les descriptions. Force a été d'ajouter, pour compléter l'ouvrage, une douzième livraison

1857–58. BONAPARTE, C. L.—Continued.

sans Planches. Le nombre des Pigeons figurés dans cette *Icongraphie* s'élève donc à 58. . . . Nous ferons observer que les espèces publiées par le Prince Charles Bonaparte appartiennent principalement aux premiers groupes de l'ordre des Pigeons, et forment aussi des séries complètes, par example, celles des Tréronés et des Ptilopés." (*Avis de l'éditeur*, le 1^er^ juillet 1858.)

Owing to these circumstances the work is in fact an unfinished one. It was announced to appear in 30 livraisons, of 150 plates (5 to a livraison). Only 12, however, were published—4 in 1857, and the remaining 8 from Sept., 1857, to July, 1858. The numbering of the plates is with reference to the whole series of 150, only 55 of which appeared; and is consequently not continuous. The 55 plates are accompanied by about as many sheets of letter-press. The following is a list of them (I cannot separate them in sets according to livraisons, nor give exact dates; but the first 20 appeared in 1857, livrs. 1–4, and the remainder in 1857 and 1858):

Pl. 1. *Phalacrotreron delalandi; a, P. abyssinnica.* 2. *P. crassirostris.* 3. *P. nudirostris; a, P. calva.* 4. *Sphenocercus apicaudus.* 5. *S. cantillans.* 6. *Treron curvirostra.* 7. *T. aromatica.* 8. *T. nepalensis.* 8. *Crocopus viridifrons.* 11. fig. 1, *Osmotreron pompadora;* fig. 2, *O. malabarica.* 12. *O. malabarica.* 13. *O. vernans.* 14. *Ramphiculus occipitalis.* 15. *Lamprotreron porphyrea.* 16. *Trerolæma leclancheri.* 17. *Thouarsitreron leucocephala.* 18. *T. diadema.* 19. *Ptilopus purpuratus.* 20. *P. flavicollis.* 21. *P. swainsoni.* 22. fig. 1, *P. clementinæ;* fig. 2. *P. mercieri.* 23. *P. roseicapillus.* 24. fig. 1, *P. ewingi;* fig. 2, *P. clementinæ.* 25. *P. greyi.* 26. *P. mariæ.* 28. *Iotreron viridis.* 29. fig. 1, *Kurutreron oopa;* fig. 2, *K. chrysogaster.* 31. *Chrysæna luteovirens.* 32. *Erythræna madagascariensis.* 33 *Serresius galeatus.* 34. *Globicera myristicivora.* 35. *G. pacifica.* 36. *G. microcera.* 38. *G. tarrali.* 39. *G. rubricera.* 40. *G. sundevalli.* 42. *Carpophaga chalybura.* 45. *C. perspicillata.* 51. *Ptilocolpa griseipectus.* 57. *Palumbus torquatus.* 58. *P. casiotis.* 61. *Dendrotreron hodgsoni.* 62. *Leucomelæna norfolciensis.* 69. *Trocaza laurivora.* 70. *T. bouvryi.* 75. *Columba rupestris.* 102. *Turtur isabellinus.* 116. *Osculatia sapphirina.* 119. *Leptoptila jamaicensis.* 121. *Talpacotia rufipennis.* 125. fig. 1, *Peristera cinerea;* fig. 2, *P. geoffroyi.* 126. *P. mondetoura.* 133. *Zenaida auriculata.* 134. *Z. hypoleuca.* 140. *Didunculus strigirostris.*

The livraisons in which these plates and their accompanying text appeared may be seen by the table of contents in the work. They were published not in the above order nor in any other; nor did the sheets of text always appear with the plates to which they respectively pertain. The text is very briefly descriptive of the subjects of the beautiful plates.

1857. BREHM, C. L. Die | Naturgeschichte und Zucht | der Tauben | oder vollständige Beschreibung aller europäischen wilden und zah- | men Taubenarten und ihrer Abänderungen, ihrer Wohnorte | und Sitten, ihrer Nahrung and Fortpflanzung, ihrer Be- | handlung und Pflege, ihres Nutzens und Schadens, ihrer | Feinde und Krankheiten. | — | Für Taubenzüchter und Ornithologen | von | Christian Ludwig Brehm, | [etc.] | — | Weimar, 1857. | Verlag und Druck von Bernh. Friedr. Voight. 1 vol. 8vo. 1 p. l., pp. i–xii, 1–177, + 1½ ll. advts.

Columbarum conspectus systematicus, pp. 7–13. The main part of the work is a complete treatment of each species and variety of European and domesticated Pigeon. Many varietal names of Brehm's occur, some doubtless new here; but it is seldom desirable and never necessary to cite his useless synonyms.

1858. [EDITORIAL.] Unusual migration of Wild Pigeons [Ectopistes migratorius]. < *Canad. Nat. and Geol.*, iii, 1858, pp. 150, 151.

1866. WYMAN, J. [Account of the dissection of a young domestic pigeon.] < *Proc. Boston Soc. Nat. Hist.*, xi, 1866, pp. 24, 25.

1867. HILL, R. Note on Geotrygon sylvatica, Gosse. < *Proc. Acad. Nat. Sci. Phila.*, xix, 1867, pp. 130, 131.

Habits; with suggested relation to *Didus.*

1867. NEWMAN, E. Notices of New Books. < *Zoologist*, 2d ser., ii, 1867, pp. 929–943.

Review of Tegetmeier's 'Pigeons, their Structure, Habits and Varieties.'

1867. TEGETMEIER, W. B. Pigeons, their Structure, Habits and Varieties. By W. B. Tegetmeier, F. L. S. With Coloured Illustrations of the Varieties by Harrison Weir. London. Routledge. 1867. 8vo.

Not seen. Cf. *Zoologist*, 2d ser., ii, 1867, pp. 929–943. The many domesticated breeds of *Columba livia* are very fully treated.

1868. HARRIS, E. D. The Structure, Flight and Habits of the different varieties of the Domesticated Pigeon. < *Proc. Boston Soc. Nat. Hist.*, xi, 1868, pp. 355–360.

1868. SCLATER, P. L., *and* SALVIN, O. Descriptions of New Species of Birds of the Families Dendrocolaptidæ, Strigidæ, and Columbidæ. <*P. Z. S.*, xxxvi, 1868, pp. 53–60, pl. v, woodcc.

The new Pigeons are described as *Leptoptila plumbeiceps* and *L. cerviniventris*, p. 59, and a synopsis of 8 spp. of the genus is given.

1868. VOIT, —. Beobachtungen nach Abtragung der Hemisphären des Grosshirns bei Tauben. <*Sitzungsb. Akad. Wissensch. München*, ii, 1868, pp. 105–108.

Not seen.

1869. VOIT, —. Observations sur l'ablation des hémisphères cérébraux des pigeons. <*Institut*, No. 1828, 12 Jan., 1869; *Ann. Sc. Nat.*, 5^e sér., xi, pp. 90–92.

Not seen.

1871. SALVADORI, T. Nuove specie di Uccelli dei generi Criniger, Picus ed Homoptila Nov. Gen. <*Atti della R. Acad. delle Scienze di Torino*, vi, 1871, pp. 128–132.

Homoptila decipiens, g. sp. n., p. 131, ex Brasiliâ.—Genus novum genere *Leptoptilæ* differt tantum remige prima apicem versus minime attenuata.

1872. ANON. Wild Pigeon [Ectopistes migratorius] roost in Maryland. <*Am. Sportsman*, ii, 1872, p. 42.

From *Baltimore Gazette*, Oct. 11, 1872.

1872. BAIRD, S. F. Restoration of excised brain in pigeons. <*Harper's New Monthly Mag.*, xlv, 1872, p. 632.

1873. ANON. Carrier Pigeons <*Forest and Stream*, i, Aug. 14, 1873, p. 5.

Use of these birds by newspapers.

1873. SANCHEZ, J., *and* VILLADA, M. M. Palomas viajeras [Ectopistes migratorius]. <*La Naturaleza*, ii, 1873, pp. 250–255.

Nota sobre las que ultimamente han emigrado a México; emigracion, descripcion, costumbres. Con noticia por el Sr. Don Ant. del Castillo.

1873. SCHLEGEL, H. Aves Columbæ. <*Mus. Nat. Hist. Pays-Bas*, 10^e livr., mars, 1863, pp. 1–180.

This is one of the most extensive and elaborate monographs of the series. It treats of the *Columbidæ* (including *Didunculus*) under the following genera: *Ptilopus*, 48 spp.; *Treron*, 24 spp.; *Columba*, 11 spp.; *Lepidoenas*, 6 spp.; *Stictoenas*, 7 spp.; *Janthoenas*, 7 spp.; *Chloroenas*, 8 spp.; *Carpophaga*, 32 spp.; *Macropygia*, 9 spp.; *Turtur*, 25 spp.; *Geopelia*, 7 spp.; *Peristera*, 22 spp.; *Chalcophaps*, 2 spp.; *Melopelia*, 2 spp.; *Phaps*, 7 spp.; *Henicophaps*, 1 sp.; *Phlegoenas*, 3 spp.; *Leptoptila*, 13 spp.; *Starnoenas*, 9 spp.; *Didunculus*, 1 sp.; *Goura*, 2 spp.; *Otidiphaps*, 1 sp.; *Caloenas*, 1 sp.

Ptilopus neglectus, p. 7; *P. cinctus lettiensis*, p. 35. *Columba palumbus himalayana*, p. 66. *Chloroenas fallax*, p. 80. *Carpophaga geelvinkiana*, p. 86; *C. luctuosa*, p. 102. *Macropygia reinwardtii minor*, p. 106; *M. turtur*, p. 110; *Turtur neglectus*, p. 122; *T. fallax*, 124; *Peristera lansbergii*, p. 139, spp. nn.

1874. ANON. Carrier Pigeons [employed as news-transporters]. <*Am. Sportsman*, v, Nov. 14, 1874, p. 99.

1874. ANON. Pigeon-catching. <*Am. Sportsman*, v, Oct. 10, 1874, p. 23.

Methods of netting *Ectopistes migratorius*; quoted from *Lewiston* (Maine) *Journal*.

1874. ANON. The Great Pigeon [Ectopistes migratorius] Roost of 1874. <*Am. Sportsman*, iv, 1874, p. 275.

Quoted from New York *World*.

1874. "A. G. D." Passenger Pigeons [Ectopistes migratorius]. <*Am. Sportsman*, iv, 1874, p. 298.

General discussion of breeding habits; and of decrease in numbers, supported by quotations and statistics.

1874. "F. P." Nesting of Wild Pigeons [Ectopistes migratorius, in Wisconsin]. <*Am. Sportsman*, iv, 1874, p. 171. See also p. 194.

1874. GARROD, A. H. On some Points in the Anatomy of the Columbæ. <*P. Z. S.*, xlii, 1874, pp. 249–259.

On the number of rectrices, and presence or absence of the oil-gland, the cœca, and the ambiens muscle. Classification of the group on these points. *Pterocles* and *Syrrhaptes* are included among *Columbæ*.

1874. Heddon, J. Will pigeons [Ectopistes migratorius] play out? < *Am. Sportsman*, iv, 1874, p. 362.

Great diminution in numbers of *Ectopistes migratorius*.

1874. "H. K." The Wild Pigeon [Ectopistes migratorius]. < *Am. Sportsman*, iv, 1874, p. 387. See also pp. 171, 194, 243, 298, and 339.

1874. Moore, J. Columbarium; | or, | The Pigeon-House: | being | an introduction | to a | Natural History | of | Tame Pigeons, | giving an | account of the several species known in England, | with the method of breeding them, their | distempers and cures. | — | [Quotation.] | — | By John Moore. | — | London: | Printed for J. Wilford, behind the Chapter-House in St. Paul's Church-Yard. | 1735. | — | Reprinted by Jos. M. Wade, | Fanciers' Journal Office, Philadelphia, 1874. 1 vol. 16mo. pp. i–x, 1–64 + 7 ll. advts., many cuts.

"Moore's work on Pigeons was, no doubt, the first, and is really the most important, work ever written on this subject, . . . 'The work is out of print [very naturally—1735], and very scarce, only two or three copies are known to be in existence at the present time.'

" . . . in May, 1874, we began its publication in the columns of the *Fanciers' Journal*, which circumstance has created a demand for this reprint in book form.

"The original work was not illustrated; and, in order to make it more valuable to young fanciers, *we have embellished it with a series of illustrations* by that well-known artist, Mr. J. W. Ludlow." (*Extracts from American Publisher's Preface.*)

There are many editions of the famous original, among them a literal reprint by Tegetmeier, 1879.

1874. Lincecum, G. The Nesting of Wild Pigeons [Ectopistes migratorius]. < *Am. Sportsman*, iv, 1874, p. 194. See also pp. 171, 243, 298, 339, and 387.

Description of food and breeding habits.

1874. "M. T." Passenger Pigeons [Ectopistes migratorius]. < *St. Nicholas Mag.*, i, 1874, p. 15.

Migrations in Minnesota.

1874. Sears, J. H. Breeding of Wild Pigeon [Ectopistes migratorius, in Essex County, Mass.]. < *Am. Sportsman*, iv, 1874, p. 155.

1875. Alix, E. Garrod (A. H.): Sur quelques points de l'anatomie des Colombés. (Proceed. Zool. Soc. London, 1874, p. 249.) < *Gerv. Journ. de Zool.*, —, 1875, pp. — – —.

Résumé des observations de M. Garrod, insérées dans les *P. Z. S.*, 1874, pp. 249–259, *q. v.*

1875. Anon. A Pigeon [Ectopistes migratorius] Roost. < *Rod and Gun*, vi, Oct. 9, 1875, p. 27.

1875. Carleton, J. F. The breeding habits of pigeons [Ectopistes migratorius]. < *Forest and Stream*, iv, Aug. 5, 1875, p. 406.

1875. "G. D. B." The pigeon [Ectopistes migratorius] roost near Corning [N. Y.]. < *Forest and Stream*, iv, May 27, 1875, p. 252.

1876. Adams, J. W. Wild pigeons [Ectopistes migratorius, yet numerous] in Massachusetts. < *Forest and Stream*, vii, Sept. 28, 1876, p. 116. See pp. 104, 184.

1876. Anon. [W. M. Tileston.] Protecting wild pigeons [Ectopistes migratorius]. < *Forest and Stream*, vii, Oct. 26, 1876, p. 184. See p. 104.

1876. Anon. Homing Pigeons [exported from France to New York]. < *Rod and Gun*, viii, Aug. 19, 1876, p. 326.

Reprinted from "L'Epervier."

1876. Gunn, C. W. The Ectopistes migratoria, Sw. Wild Pigeon. < *Oölogist*, ii, No. 4, 1876, p. 29, 30.

1876. [Ingersoll, E.] The Protection of Wild Pigeons [Ectopistes migratorius]. < *Forest and Stream*, vii, Sept. 21, 1876, p. 104. See p. 184.

Comments and statistics on the progressive destruction of this species.

1876. Owen, T. M. Wild Pigeons [Ectopistes migratorius]. < *Rod and Gun*, viii, June 3, 1876, p. 148.

Statistics as to capture of living and dead specimens of this species in Ohio and Michigan for shooting matches and market.

1876. REID, P. Pigeons [Ectopistes migratorius]—Food in Crop. < *Rod and Gun*, vii, Jan. 8, 1876, p. 227. See also p. 277.

Explaining "rice" found in pigeon's stomachs, supposed by Audubon and others to prove enormous velocity of the bird's flight.

1876. STERLING, E. Passenger Pigeons [Ectopistes migratorius] and Rice. < *Rod and Gun*, vii, Jan. 29, 1876, p. 277.

Reply to Reid, concerning "rice in crops", and velocity of flight. See p. 227.

1876. "TOM TRAMP." A pigeon [Ectopistes migratorius] roost. < *Rod and Gun*, viii, June 3, 1876, p. 149.

Breeding of, and statistics of capture and decrease of this species in Illinois.

1877. COUES, E. Melopelia leucoptera in Colorado. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, p. 83.

1877. COUES, E. Leptoptila albifrons, a Pigeon new to the United States Fauna. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 82, 83.

Taken in Texas by G. B. Sennett. Soon afterward made type of a new genus, *Æchmoptila*, Coues, *Bull. U. S. Geol. Surv. Terr.*, iv, No. 1, 1878, p. 48 (=*Engyptila*, Sundev., *Tentamen*, 1872, p. 156.)

1877. ROWLEY, G. D. Geotrygon costaricensis (Lawrence). < *Rowl. Orn. Misc.*, iii, pt. xi, Nov., 1877, pp. 43–46, pl. lxxxvii.

Copy of orig. descr. in *Ann. N. Y. Lyc.*, ix, 1868, p. 136, with a colored fig. of the bird, and notes by A. Boucard.

1878. FIROR, V. M. Chameœpelia passerina. < *Familiar Science and Fancier's Journ.*, n. s., v, Apr., 1878, p. 86.

1878. GRINNELL, G. B. The Ground Dove (Chamæpeleia passerina) in New York. < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, p. 147.

In New York City, Oct., 1862; specimen identified by J. W. Audubon; now first recorded.

1878. McL[ELLAN, I.] The Wild or Passenger Pigeon (Columba [Ectopistes] migratoria). < *Forest and Stream*, ix, Jan. 31, 1878, p. 488.

1878. OWEN, T. M. Among the Pigeons [Ectopistes migratorius, in Ohio]. < *Forest and Stream*, x, May 23, 1878, p. 297.

1878. ROWLEY, G. D. Chlorœnas subvinacea. Lawrence. < *Rowl. Orn. Misc.*, iii, pt. xii, Jan., 1878, pp. 75, 76, pl. xci.

Copy of orig. descr. in *Ann. N. Y. Lyc. Nat. Hist.*, ix, Apr., 1868, p. 135, with colored plate, and a note from A. Boucard.

1878. ROWLEY, G. D. Geotrygon rufiventris, Lawrence. < *Rowl. Orn. Misc.*, iii, pt. xii, Jan., 1878, pp. 77, 78, pl. xcii.

Copy of orig. descr. in *Ann. Lyc. Nat. Hist. N. Y.*, xi, 1875, with a colored plate, and note by A. Boucard.

1878. ROWLEY, G. D. Leptoptila cassini, Lawrence. < *Rowl. Orn. Misc.*, iii, pt. xii, Jan., 1878, pp. 79, 80, pl. xciii.

1878. STERLING, E. [Acorns of the black-jack oak as] Food of the Wild Pigeon [Ectopistes migratorius]. < *Forest and Stream*, x, Mar. 14, 1878, p. 95.

1879. KNAPP, H. Statement about the Wild Pigeon [Ectopistes migratorius]. < *Forest and Stream*, xii, Mar. 27, 1879, p. 146.

Taken from some Central New York newspaper, either Buffalo or Rochester, I think.

1879. MCQUILLEN, J. H. Recovery of all the Faculties in a Pigeon from which four-fifths of the upper portion of the Cerebrum had been removed. < *Proc. Acad. Nat. Sci. Phila.*, Oct., 1878, (pub. 1879), pp. 342–346.

1879. THOMPSON, F. J. Incubation [of Ectopistes migratorius] under Difficulties. < *Forest and Stream*, xii, May 8, 1879, p. 265.

Account of its breeding, in March, in an open air aviary in the Cincinnati Zoological Garden.

Cracidæ.

1733. PERRAULT, C. Description anatomique de trois Cocqs Indiens [Cracidæ]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. i, 1733, pp. 221–231, pl. 33, 34.

Mitu-poranga of Marcgrave.

1757. PERRAULT, C. Anatomische Beschreibung dreier indianischer Hühner [Cracidæ]. < *Abhandl. Königl. Französich Akad.*, i, 1757, pp. 259–——.

Nicht mir selbst zugänglich: Titel aus Giebel. Uebers. d. *Mém. de l'Acad. Roy. Paris,* 1666–1699, iii, pt. i, 1733, pp. 221–231.

1830. WAGLER, J. Revisio generis Penelope. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1109–1112.

Important: "may be regarded as the earliest scientific article (in a modern sense) upon this subject." Describes 18 spp., in three sections, A, B, C, corresponding exactly to the genera *Pipile*, *Penelope*, and *Ortalida*. "His excellent diagnoses materially assist us in identifying Spix's species." Seven new species are described, namely: *P. pileata* (Licht., M. B.), p. 1109; *P. purpurascens*, p. 1110; *P. albiventris*, *P. ruficeps*, p. 1111; *P. vetula*, *P. poliocephala*, *P. canicollis* (after Azara), p. 1112. All these are considered valid by Sclater and Salvin.

1831. ANON. Revue du genre Penélope; par M. Wagler. < *Féruss. Bull.*, 2^e^ sect., xxiv, 1831, pp. 367, 368.

Ici se trouve seulement la description genérique, avec une énumération des espèces: tirée de l'*Isis*, 1830, pp. 1109–1112, *q. v.*

1831. YARRELL, W. [On the Tracheæ of Cracidæ.] < *P. Z. S.*, i, 1831, pp. 33, 34.

Crax yarrelli, sp. n., p. 33, descr. nullâ. See Bennett, *Gard. and Menag. Zool. Soc.*, 1835, p. 227, where first described, and figured.

1831. YARRELL, W. [On the Sterno-trachæal Muscles of Ourax mitu.] < *P. Z. S.*, i, 1831, p. 59.

1833. PORTER, R. T. [Letter relating to Cracidæ from Caracas.] < *P. Z. S.*, 1833, p. 114.

1833. YARRELL, W. [On the Trachea of the Penelope Guan, Temm.] < *P. Z. S.*, i, 1833, p. 3.

1835. YARRELL, W. [Ueber die Luftrohre von Penelope Guan, Temm.] < *Oken's Isis,* 1835, p. 517.

Nicht mir selbst zugänglich.—Aus d. *P. Z. S.*, 1833, p. 3.

1836. HERON, R. [On the breeding of Curassows (Cracidæ) in confinement at Stubton.] < *P. Z. S.*, iv, 1836, p. 1.

1836. HERON, R. [On the breeding of Curassows (Cracidæ) in confinement at Stubton.] < *Lond. and Edinb. Philos. Mag.*, ix, 1836, p. 141.

From *P. Z. S.*, Jan. 12, 1836, p. 1.

1838. HERON, R. Brüten von Crax rubra im letzten Sommer. < *Oken's Isis*, Bd. xxxi, 1838, p. 168.

Aus d. *P. Z. S.*, iv, 1836, p. 1.

1840. FREMBLY, J. [Notice of forwarding of Penelope pileata to the Society.] < *P. Z. S.*, viii, 1840, p. 131.

1842. CABOT, S., JR. [On the Paraqua Guan or Phasianus motmot.] < *Proc. Boston Soc. Nat. Hist.*, i, 1842, pp. 76, 77.

1846. HERON, R. [Note on the Genus Crax.] < *P. Z. S.*, xiv, 1846, p. 67.

1848. [JARDINE, W.] Ortalida ruficauda, Jardine. < *Jard. Contrib. Orn.*, 1848, pp. 16, 17, woodc. pl. iii.

Anatomical.

1848. [JARDINE, W.] Penelope cristata. < *Jard. Contrib. Orn.*, 1848, pp. 16, 17, woodc. pl. viii.

Anatomical.

1850. FRASER, L. On new Birds in the Collection at Knowsley. < *P. Z. S.*, xviii, 1850, pp. 245, 246, pll. (Aves) xxv–xxix.

Palæornis derbianus, p. 245, pl. xxv; *P. erythrogenys*, p. 245, pl. xxvi; *Crax alberti*, p. 246, pll. xxvii, xxviii; *Penelope niger*, p. 246, pl. xxix. On these *Cracidæ*, see *P. Z. S.*, 1870, p. 509.

1854. POMME, —. Sur les Hoccos et les Marails, extrait d'une lettre addressée a M. Is. Geoffroy Saint-Hilaire. < *Bull. Soc. Acclim.*, i, 1854, pp. 139–143.

1854. BARTHÉLEMY-LAPOMMERAYE, —. Note sur l'acclimatation et domestication du Hocco [Crax alector]. < *Bull. Soc. Acclim.*, i, 1854, pp. 123–126.

1854. BARTHÉLEMY-LAPOMMERAYE, —. Sur la reproduction du Hocco en France, extrait d'une lettre addressée a M. Is. Geoffroy Saint-Hilaire: Addition à la note présentée à la Société zoologique d'Acclimatation dans la séance du 10 mars 1854. < *Bull. Soc. Acclim.*, i, 1854, pp. 406–408.

1857. MARTIN, L. Das klimatische Abandern der grossen süd- und mittelamerikanischen Hühner-Arten [Crax, Urax, Penelope]. < *J. f. O.*, v, 1857, pp. 70–72.

1858. BARTHÉLEMY-LAPOMMERAYE, —. Sur la reproduction du Hocco lettre addressée a M. le Président de la Société impériale zoologique d'acclimatation. < *Bull. Soc. Acclim.*, v, 1858, pp. 483, 484.

1859. LE LONG, J. Extrait de la lettre de M. Le Long, membre de la Société, annonçant le don de plusieurs oiseaux [Cracidæ]. < *Bull. Soc. Acclim.*, vi, 1859, p. 487.

1860. GRAY, G. R. Synopsis of the Species of the Genus Penelope. < *P. Z. S.*, xxviii, 1860, pp. 269–272.

14 spp. Diagnosis, synonymy, and habitat. *P. nigricapilla*, *P. lichtensteinii*, p. 269; *P. sclateri*, *P. bridgesi*, p. 270, spp. nn.

1860. SALVIN, O. History of the Derbyan Mountain-Pheasant (Oreophasis derbianus). < *Ibis*, ii, 1860, pp. 248–253.

1860. SCLATER, P. L. [Exhibition of specimens of Oreophasis derbianus, from the Volcan de Fuego, Guatemala.] < *P. Z. S.*, xxviii, 1860, p. 184.

1861. BARTHÉLEMY-LAPOMMERAYE, —. Ueber die Einführung und Zähmung der Hoccos [Cracidæ]. < *Zool. Gart.*, ii, 1861, pp. 110–112.

1861. KRÜGER, A. [Ueber Penelope sp.] < *Zool. Gart.*, ii, 1861, p. 133.

1861. POMME, —. Ueber die Hoccos und Jakhühner [Cracidæ]. < *Zool. Gart.*, ii, 1861, pp. 163–165.

Bull. Soc. d'Acclim., i, 1854, pp. 139–143.

1862. BARTHÉLEMY-LAPOMMERAYE, —. Notice sur l'éducation du Hocco de la Guyane (Crax globicera). < *Bull. Soc. Acclim.*, ix, 1862, pp. 861–871.

1865. AQUARONE, P. Note sur l'éducation des Hoccos [Cracidæ]. < *Bull. Soc. Acclim.*, 2^e^ sér., ii, 1865, pp. 449–462, fig.

1865. AQUARONE, P. Die Zucht der Hokkos [Cracidæ]. < *Zool. Gart.*, vi, 1865, pp. 428–430.

Auszüge aus d. *Bull. Soc. d'Acclim.*, ii, 1865, pp. 449–462.

1866. AQUARONE, P. Notice complémentaire sur l'éducation des Hoccos [Cracidæ]. Lettre addressée a M. le Directeur du Jardin d'Acclimatation du Bois de Boulogne. < *Bull. Soc. Acclim.*, 2^e^ sér., iii, 1866, pp. 25–28.

1866. GRAY, G. R. On a New Species of Penelope [greeyii], lately living in the Society's Gardens. < *P. Z. S.*, xxxiv, 1866, p. 206, pl. xxii.

1870. SCLATER, P. L., *and* SALVIN, O. Synopsis of the Cracidæ. < *P. Z. S.*, xxxviii, 1870, pp. 504–544.

This is a very complete memoir, remaining to date the leading authority on the subject, as may be judged from the following synopsis:

§ 1. Introductory Remarks, p. 504: on the systematic position and relations of the family.

1870. Sclater, P. L, *and* Salvin, O.—Continued.

§ 2. Brief Chronological Account of the Writings of the Principal Authorities on the *Cracidæ*, pp. 505-512: an analysis of the literature of the subject, noting principal articles in works of wider scope, as well as special papers. Of this I give the following condensation:

1766. Linn., *Syst. Nat.*, i. Five species: *Crax* (g. n.) *rubra*, *globicera*, ———, ———, and *Phasianus motmot.*

1780 (about). *Pl. Enl.* 86 = *Crax daubentoni;* 125 = *C. globicera* ♀; 78 = *Pauxi galeata;* 338 = *Penelope marail.*

1783. Boddaert, *Tabl. P. E. Phasianus katraka* sp. n. = P. E. 146 = *Ortalida motmot.*

1784. Jacquin, *Beyt. Gesch. Vög. Crax cumanensis*, pl. 19; *C. pipile*, pl. 11.

1786. Merrem, *Ic. Av.*, fasc. 2dus, p. 40. *Crax*, L.; *Penelope*, g. n., type *P. jacupema; Ortalida*, g. n., type *Phas. motmot*, L. [On this name, see especially Wharton, *Ibis*, 1879, p. 450.] *P. jacupema* and *P. leucolophos* figured.

1788. Gmelin, *Syst. Nat. Penelope cristata*, *P. cumanensis*, *P. marail*, *P. satyra* (a *Ceriornis*), *P. vociferans*, *Phasianus parraka.*

1790. Latham, *Ind. Orn. Crax galeata*, n. sp. = *C. pauxi*, L.

1811. Humboldt, *Rec. Obs. Zool.*, i, p. 4. *Phasianus garrulus* sp. n. (= *Ortalida garrula.*)

1815. Temm., *Pig. et Gall.*, vol. ii. *Pauxi*, g. n.; *Crax carunculata*, *Penelope obscura*, *P. superciliaris*, spp. nn.

1823. Temm., *Pl. Col.*, livr. 26. *Ourax* = *Pauxi; O. mitu* figured.

1825. Spix, *Av. Bras.*, vol. ii. *Crax fasciolata*, *urumutum*, *tomentosa*, *blumenbachii*, *globulosa*, *rubrirostris*, *tuberosa*, *Penelope jacuacu*, *jacucaca*, *jacutinga*, *jacupeba*, *jacupemba*, *guttata*, *araucuan*, described and figured.

1828. Lesson, *Man. Orn.*, vol. ii. *Penelope aburri*, *Ortalida goudoti*, *Crax albini*, spp. nn.

1830. Wagler, Revisio generis *Penelope.* [See the paper in this Bibliography, anteà, 1830.]

1831. Lesson, *Tr. Orn. Mitu*, g. n., p. 485.

1832. Wagler, *Isis. Salpiza*, *Chamaepetes*, genn. nn.

1833. Maximilian, *Beit. Naturg. Bras. Crax rubrirostris*, *Penelope superciliaris*, *P. leucoptera*, *P. araucuan.*

1835. Bennett, *Gard. and Menag. Zool. Soc.* Descr. and figs. of 6 spp.; *Crax yarrelli*, orig. descr., but see *P. Z. S.*, 1831, p. 33.

1841. Strickl., *Ann. Nat. Hist.*, vii. *Mitu*, Less., changed to *Mitua*, p. 36.

1844. Gray, *Gen. of B.*, iii. 34 + 3 spp. of *Cracidæ. Oreophasis derbyanus*, g. sp. n., p. 485, pl. 121.

1844–46. Tschudi, *Fn. Peru. Crax temminckii*, *Penelope aspersa*, *P. rufiventris*, spp. nn.

1846. Gray, J. E., *Knowsley Menag.* Four col'd pll. of *Penelope superciliaris*, *P. pileata*, *P. pipile*, *P. purpurascens.*

1847. Jardine, *Ann. Nat. Hist. Ortalida ruficauda*, sp. n.

1850. Fraser, *P. Z. S. Crax alberti*, *Penelope nigra*, spp. nn.

1852. Reichenbach, *Av. Syst. Nat. Penelops*, *Aburria*, genn. nn.

1856. Bonaparte, *Compt. Rend.*, Tableaux Gallinacés. *Pipile* (g. n.) *argyrotes*, *Ortalida montaguii*, spp. nn.

1856. Burmeister, *Syst. Uebers. Th. Bras.*, vol. iii. On *P. nothicrax*, g. n., p. 347.

1858. Pelzeln. *Penelope cujubi*, Natt. MS.

1858. Baird, *Birds N. Amer. Ortalida maccallii*, sp. n.

186–. Reichenbach, *Vollst. Naturg. Tauben.* Four new spp. of *Crax*, one n. sp. of *Penelope Crax* divided into *Crax*, *Mituporanga* (g. n.), *Crossolaryngus* (g. n.), and *Sphærolaryngus; Penelopsis* = *Penelops*, Reich., *Av. Syst. Nat.; Penelopina*, g. n.

1866. Gray, *P. Z. S. Penelope greeyii*, sp. n.

1867. Gray, *Gallinæ Br. Mus. Penelope jacquini*, *Ortalida superciliaris*, *O. bronzina*, *O plumbeiceps*, *O. wagleri*, *O. cinereiceps*, *Crax sclateri*, *C. daubentoni*, spp. nn.

1867. Salvin, *P. Z. S. Chamaepetes unicolor*, sp. n.

1869. Cabanis, *J. f. O. Ortalida frantzii*, sp. n.

§ 3. Synopsis of the species of *Cracidæ*, pp. 512-541. The 52 spp. known to the authors are divided into 3 subfamilies: 1) *Cracinæ*, with 4 genera (*Crax*, *Nothocrax*, *Pauxi*, *Mitua*); 2) *Penelopinæ*, with 7 genera (*Stegnolæma* (g. n., p. 521), *Penelope*, *Penelopina*, *Pipile*, *Aburria Chamæpetes*, *Ortalida* (*O. ruficrissa*, sp. n., p. 538)); 3) *Oreophasinæ*, 1 g. sp.—The species are elaborately worked up, with copious synonymy, diagnosis, distribution, and criticism.

§ 4. Geographical Distribution of the *Cracidæ*, pp. 541-544.

1871. Burmeister, [H.] [Extracts from a letter on Messrs. Sclater and Salvin's Synopsis of the Cracidæ (P. Z. S., 1870, p. 504).] < *P. Z. S.*, xxxix, 1871, pp. 701, 702

Relating chiefly to the geographical distribution of certain species.

1871. Sclater, P. L. [On additions to the Society's Menagerie.] < *P. Z. S.*, xxxix, 1871, pp. 36, 37.

Pipile cumanensis.

1872. ANON. Les Marails. < *Bull. Soc. Acclim.*, 2e sér., ix, 1872, p. 692.

1873. SCLATER, P. L. [Notice of a paper on the Curassows (Cracidæ).] < *P. Z. S.*, xli, 1873, p. 557.

1874. SUMMERHAYES, W. [Letter on Curassows (Cracidæ) met with in Venezuela.] < *P. Z. S.*, xlii, 1874, pp. 419, 420.

1875. FUNCK, N. [Letter stating Pauxis galeata var. rubra, of Tr. Zool. Soc., ix, pl. 53, to be true P. galeata ♀.] < *P. Z. S.*, Nov. 16, 1875, p. 566.

1877. GADOW, H. Anatomische Beschreibung der Hoccohühner (Cracidæ Vig.). < *J. f. O.*, Apr., 1877, pp. 181–190.

1877. ROWLEY, G. D. [Note on the egg of Pauxis galeata.] < *P. Z. S.*, Nov. 6, 1877, p. 684.

1878. SCLATER, [P. L.] [Notice of supplementary Memoir on the Cracidæ.] < *P. Z. S.*, June 18, 1878, p. 656.

To be pub. in *Trans. Zool. Soc.*

1879. REINHARDT, J. [Letter relating to Mitua salvini, Reinhardt, Vid. Medd. Nat. For. i Kjöbenh., Jan. 8, 1879.] < *P. Z. S.*, Feb. 4, 1879, pp. 108, 109.

Remarks by Mr. Sclater agreeing to the validity of the curious species, and placing it next to *M. tomentosa*, with the differential characters.

Meleagrididæ.

1699. Floyer, J. A Relation of two Monstrous Pigs, with the resemblance of Humane Faces, and two young Turkeys [Meleagris gallopavo] joined by the Breast. < *Philos. Trans.*, xxi, 1699, pp. 431–435.

1781. Pennant, T. An Account of the Turkey [Meleagris gallopavo]. < *Philos. Trans.*, lxxi, pt. i, 1781, pp. 67–81, pl. iii.

Very complete. The pl. represents a malformation of the leg.

1789. Ödmann, S. Om en Kalkontupp [Meleagris gallopavo], som utlegat Hônsägg. < *Kongl. Vetensk.-Acad. Nya Handl.*, x, 1789, pp. 236–238.

Anmärkning därvid af G. v. Carlson, *ibid.*, p. 239.

1789. Carlson, G. v. Anmärkning [om en Kalkontupp (Meleagris gallopavo), som utlegat Hônsägg]. < *Kongl. Vetensk.-Acad. Nya Handl.*, x, 1879, p. 239.

1791. Bartram, W. [The Wild Turkey of the United States binomially named Meleagris occidentalis at p. 83, M. americanus at p. 290 bis.] < *Trav. in Fla.*, etc., orig. ed., 1791, pp. 83 and 290 *bis.*

Though not properly citable as a separate article, I introduce this title to give the reference to the original names and descriptions of the bird—the name *M. gallopavo* L. being based upon the domestic race, subsequently renamed *M. mexicana* by Gould.

1799. Ödmann, [S.] Remarkable Instance of a Turkey Cock [Meleagris gallopavo] hatching Eggs. < *Tilloch's Philos. Mag.*, iii, 1799, pp. 309, 310.

Af *Kongl. Vetensk.-Acad. Nya Handl.*, x, 1789, pp. 236–238.

1805. [Barton, B. S.] [On the occurrence of two distinct species of Meleagris in North America.] < *Barton's Med. and Phys. Journ.*, part i, vol. ii, 1805, pp. 162, 163.

Referring to a memoir read before the Amer. Philos. Soc., in which the author shows that there are two distinct species of *Meleagris*—one, the common domesticated Turkey, *M. gallopavo* of Linnæus, "which was altogether unknown in the countries of the old world before the discovery of America"; the other, "the common wild Turkey of the United States," to which the author of the memoir gives the name of *Meleagris palawa*, sp. n. After Bartram's notice of 1791, Barton's is the earliest to decide upon the existence of two species.

1805. [Barton, B. S.] [On the food of the common wild Turkey of the United States, Meleagris palawa.] < *Barton's Med. and Phys. Journ.*, part i, vol. ii, 1805, pp. 163, 164.

1815. Clinton, De Witt. An Introductory Discourse delivered on the 4th of May, 1814. < *Trans. Lit. and Philos. Soc. New York*, i, 1815, pp. 21–184. > Note S, pp. 125–128.

Note S, appended to the discourse, treats of the origin of the domestic Turkey, *Meleagris gallopavo.*

1820. Cuvier, G. Description d'une nouvelle espèce de dindon de la baie de Honduras. (Meleagris ocellata. Cuv.) < *Mém. du Mus. d'Hist. Nat.*, vi, 1820, pp. 1–4, pl. i.

La notice de cette espèce se trouve reproduite dans les *Ann. Génér. Sc. Phys.*, vii, 1820, pp. 145, 146; Brugnatelli, *Giorn. di Fis.*, iv, Dec. 2, 1821, p. 164.

1826. Bonaparte, C. L. Ueber den wilden Truthahn [Meleagris americana]. < *Froriep's Notizen*, xiii, No. 275, 1826, pp. 165–170.

Nicht mir selbst zugänglich: Titel aus Carus and Engelmann.—Wahrscheinlich einer Auszug aus dessen *Amer. Ornith.*

1832. Anon. Turkeys [Meleagris gallopavo] eat Caterpillars which feed on Tobacco; and Hogs eat the poisonous Root of Cassava (Janipha manihot). < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 472, 473.

1836. Hildreth, S. P. [Wild Turkeys (Meleagris americana) in the Kanawha Valley, Virginia.] < *Sillim. Am. Journ. Sci.*, xxix, 1836, p. 85.

1837. **Owen, Richard.** [Dissection of the head of the Common Turkey (Meleagris gallopavo).] < *P. Z. S.*, v, 1837, pp. 34, 35.
With that of *Cathartes aura.*

1839. **Owen, Richard.** [Geruchsnerven des Truthuhns (Meleagris gallopavo).] < *Oken's Isis*, Bd. xxxii, 1839, p. 144.
Auszug aus d. *P. Z. S.*, v, 1837, pp. 34, 35.

1842. **Cabot, S., Jr.** [On Meleagris ocellata.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1842, pp. 73, 74.

1842. **Cabot, S., Jr.** [Remarks on Meleagris gallopavo, etc.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1842, pp. 80, 81.

1842. **Cabot, S., Jr.** Observations on the characters and habits of the Ocellated Turkey, (Meleagris ocellata, Cuv.) < *Journ. Bost. Soc. Nat. Hist.*, iv, pt. ii, 1842, pp. 246–251.

1844. **Gérard, —.** Notice sur les Dindons [Meleagris gallopavo]. Paris. 1844. 8vo. pp. 12.
Pas vue moi-même: le titre tiré de Carus et Engelmann.

1848. **Fisher, W. R.** On the supposed Occurrence of Turkeys' [Meleagris gallopavo] Bones at Lough Gûr. < *Zoologist*, vi, 1848, pp. 2064, 2065.

1849. **Chevassu, F.** Nouvel art d'élever, de multiplier et d'engraisser les Dindons [Meleagris gallopavo], contenant . . . Paris. Tissot. 1849. 18mo. pp. 36.
Pas vu moi-même: le titre tiré de Carus & Engelmann.

1856. **Gould, J.** On a new Turkey, Meleagris mexicana. < *P. Z. S.*, xxiv, 1856, pp. 61–63.
Subsequently determined to be the stock whence the domestic bird descended, and hence a synonym of *M. gallopavo* Linn.

1856. **Gould, J.** A new species of Turkey [Meleagris mexicana] from Mexico. < *Am. Journ. Sci.*, xxii, 1856, p. 139.
From *P. Z. S.*, 1856, pp. 61–63.

1856. [**Gould, J.**] A new Species of Turkey [Meleagris mexicana] from Mexico. < *Edinb. New. Philos. Journ.*, n. s., iv, 1856, pp. 371, 372.
From *Am. Journ. Sci.*, xxii, July, 1856, p. 139; this from *P. Z. S.*, 1856, pp. 61–63.

1857. **Bryant, H.** [On the supposed new species of Turkey (Meleagris mexicana) recently described by Mr. Gould.] < *Proc. Bost. Soc. Nat. Hist.*, vi, 1857, pp. 158, 159.

1857. [**Frost, J.**] Der Indianer und der wilde Truthahn [Meleagris americana]. < *Interessante Abenteuer unter den Indianern*, u. s. w., Phila., 1857, pp. 251–254.
Zur Lebensweise.

1857. **Gould, J.** On a new Turkey, Meleagris mexicana. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 107–110.
From *P. Z. S.*, Apr. 8, 1856, pp. 61–63.

1857. **Le Conte, J.** Observations on the Wild Turkey, or Gallapavo sylvestris, of Ray. < *Proc. Acad. Nat. Sci. Phila.*, ix, 1857, pp. 179–181.
Distinction between wild and tame Turkeys in habits and physical characters.

1860. **Schmidt, Max.** Nachrichten aus dem Zoologischen Garten [über Meleagris gallopavo]. < *Zool. Gart.*, i, 1860, pp. 87, 88.

1861. **Sclater, P. L.** Note on the Ocellated Turkey [Meleagris ocellata] of Honduras. < *P. Z. S.*, xxix, 1861, pp. 402, 403, pl. xl.

1863. **Oefele, —, v.** Zweckmässige Fütterung und Haltung von Truthühnern [Meleagris gallopavo]. < *Zool. Gart.*, iv, 1863, pp. 169–172.

1863. **Sacc, *Dr.*** Sur le Dindon (Meleagris gallopavo). < *Bull. Soc. Acclim.*, x, 1863, pp. 663– —.

1867. BAIRD, S. F. The Origin of the Domestic Turkey [Meleagris gallopavo]. < *Report U. S. Agric. Dept. for* 1866, 1867, pp. 288–290.

Held to be descended from the stock named *M. mexicana*, by Gould, in 1856; the proposition being that there are two species in the United States.

1868. HOYNINGEN-HUENE, A. Notiz über Meleagris gallopavo. < *J. f. O.*, xvi, 1868, p. 358.

Lebensweise.

1869. D[ELONDRE], A. A. Le Dindon huppé (Crested Turkey). < *Bull. Soc. Acclim.*, 2e sér., vi, 1869, pp. 727, 728.

Extrait de *The Field*, le 17 juillet 1869, p. 46.

1869. GUNN, T. E. Vitality of a Turkey [Meleagris gallopavo]. < *Zoologist*, 2d ser., iv, 1869, p. 1722.

1870. ROGER, E. Reproduction des Dindons Sauvages d'Amérique en liberté. Lettre adressée a M. Geoffroy Saint-Hilaire. < *Bull. Soc. Acclim.*, 2e sér., vii, 1870, pp. 264–266.

18—-72. ELLIOT, D. G. A | Monograph | of the | Phasianidæ | or | Family of the Pheasants. | By | Daniel Giraud Elliot, | [etc., 7 lines.] | — | Volume I [II]. | — | [18—-] 1872: | published by the author, 27 West Thirty-third Street, New York. | [Taylor and Francis, Red Lion Court, London, imp. text. H. and N. Hanhart, imp. plates. J. Wolf, del. J. Smit, lith. J. D. White, pinx.] Vol. I, 18—, Title, 1 leaf. Dedication, 1 leaf. List subscribers, preface, introduction, explanation, list of plates, pp. i–xl. Plates i–xxix, xxix bis, xxx–xxxii, with one or more unpaged sheets of letter-press to each. Vol. II, 18—, Title, 1 leaf. List of plates, 1 leaf. Plates i–xiii, xiii bis, xiv–xlvii, with one or more unpaged sheets of letter-press to each. (A few additional sheets of subfamily characters in both vols.) Plates i, ii, plain: the rest colored. 81 plates in all.

The work is not paged nor are the plates numbered: the only clue to the plates is the printed list. This may be conceded to be the most superb, as it is also the most extensive, of Mr. Elliot's great Iconographies. Among the birds represented are some of the most gorgeous objects in ornithology. The plates of *Pavo muticus* and *Meleagris ocellata* are incomparable except with some of the other splendid effects of Wolf's art.

The Introduction goes quite fully into the history of the family, their geographical distribution, etc.

Vol. I.—Plates 1, 2. Generic details. 3. *Pavo cristatus.* 4. *P. nigripennis.* 5. *P. muticus.* 6. *Polyplectron thibetanum.* 7. *P. bicalcaratum.* 8. *P. germaini.* 9. *P. emphanum.* 10. *P. chalcurum.* 11. *Argus giganteus.* 12. *A. grayi.* 13. Feathers of *A. ocellatus* and *A. bipunctatus.* 14. *Crossoptilon thibetanum.* 15. *C. drouyni.* 16. *C. mantchuricum.* 17. *C. auritum.* 18. *Lophophorus impeyanus.* 19. *L. lhuysi.* 20. *L. sclateri.* 21. *Tetraophasis obscurus.* 22. *Ceriornis satyra.* 23. *C. melanocephala.* 24. *C. temmincki.* 25. *C. caboti.* 26. *C. blythi.* 27. *Pucrasia macrolopha.* 28. *P. duvauceli.* 29. *P. xanthospila.* 29 bis. *C. darwini.* 30. *Meleagris gallopavo.* 31. *M. mexicana.* 32. *M. ocellata.*

Vol. II.—Pl. 1. *Phasianus shawi.* 2. *P. colchicus.* 3. *P. insignis.* 4. *P. mongolicus.* 5. *P. torquatus.* 6. *P. formosanus.* 7. *P. decollatus.* 8. *P. elegans.* 9. *P. versicolor.* 10. *P. wallichii.* 11. *P. reevesi.* 12. *P. soemmeringi.* 13. *P. soemmeringi* var. *scintillans.* 13 bis. *Calophasis ellioti.* 14. *Thaumalea amherstiæ.* 15. *T. picta.* 16. *T. obscura.* 17. Hybrid. 18. *Euplocamus albocristatus.* 19. *E. melanotus.* 20. *E. horsfieldi.* 21. *E. nycthemerus.* 22. *E. andersoni.* 23. *E. lineatus.* 24. *E. prælatus.* 25. *E. swinhoei.* 26. *E. ignitus.* 27. *E. nobilis.* 28. *E. erythrophthalmus.* 29. *E. pyronotus.* 30. *Ithaginis cruentus.* 31. *I. geoffroyi.* 32. *Gallus ferrugineus.* 33. *G. lafayetti.* 34. *G. sonnerati.* 35. *G. varius.* 36. *Phasidus niger.* 37. *Agelastes meleagrides.* 38. *Acryllium vulturinum.* 39. *Numida meleagris.* 40. *N. coronata.* 41. *N. mitrata.* 42. *N. ptilorhyncha.* 43. *N. granti.* 44. *N. verreauxi.* 45. *N. cristata.* 46. *N. pucherani.* 47. *N. plumifera.*

It thus appears that the *Phasianidæ* of this author include the African family *Numididæ*, and the American *Meleagrididæ*.

1872. ANON. The Wild Turkey [Meleagris americana]. < *Am. Sportsman*, ii, 1872, p. 10.

1873. ANON. [EDITORIAL.] The Wild Turkey [Meleagris americana]. < *Forest and Stream*, i, Oct. 9, 1873, p. 137.

1873. CATON, J. D. The Senses of Sight and Hearing in the wild Turkey [Meleagris americana] and the common Deer. < *Am. Nat.*, vii, 1873, p. 431.

1873. "OBSERVER." Wild Turkeys [Meleagris americana, in Northern Maryland]. < *Forest and Stream*, i, Dec. 18, 1873, p. 290.

1875. ANON. [Der Truthahn (Meleagris gallopavo) als jagdbares Wild.] < *Aus der Natur*, lxvi, oder n. F., liv, 1875, p. 267.

1875. "BOB WHITE." Wild Turkey (Meleagris gallopavo [americana]). < *Am. Sportsman*, v, Jan. 30, 1874–75, p. 279.

1875. HUBBARD, J. H. Wild Turkeys [Meleagris americana] Playing Out. < *Rod and Gun*, vi, Apr. 24, 1874, p. 58.

Statistics of destruction of these birds in Michigan.

1875. JACKSON, J. B. S. [Exhibition of a curiously malformed Sternum of Meleagris gallopavo, presenting a cavity through which the intestine passed.] < *Proc. Bost. Soc. Nat. Hist.*, xviii, 1875, p. 454.

1875. "KEYSTONE, F. F. V." Wild turkey [Meleagris americana] trapping and hunting. < *Forest and Stream*, iv, Mar. 11, 1875, p. 67.

1876. [STOCKWELL, G. A.] Game of Michigan. Wild Turkey.—Meleagris gallipavo [i. e., americana], Meleagris mexicana. < *Rod and Gun*, ix, Nov. 4, 1876, p. 65.

Writing under the pseudonym "ARCHER," this person ran a long course of literary imposture, chiefly on the game birds of America, in the columns of the *Chicago Field*, the *London Field*, and doubtless elsewhere, until his gross plagiaries were at length exposed. None of his writings that have come under my observation have the slightest claim to be regarded. (See COUES, *Chicago Field*, Nov. 29, 1879, and "ARCHER," *ibid.*, Dec. 20, 1879.

1877. ANON. Hon. J. D. Caton's Domesticated Wild Turkeys (Meleagris gallopavo americana). < *Forest and Stream*, ix, Oct. 18, 1877, p. 207.

1877. ANON. [EDITORIAL.] Domesticated Wild Turkeys [Meleagris americana]. < *Forest and Stream*, ix, Dec. 13, 1877, p. 366.

1877. "BOB WHITE." Wild Turkeys [habits of Meleagris americana]. < *Forest and Stream*, ix, Aug. 30, 1877, p. 64.

1877. CATON, J. D. The Wild Turkey [Meleagris americana] and its Domestication. < *Am. Nat.*, xi, No. 6, 1877, pp. 321–330.

1878. "W. H. R." Birds towering [e. g., Wild Turkeys, Meleagris americana]. < *Forest and Stream*, x, May 2, 1878, p. 235.

1879. COUES, E. The Origin of the Turkey [Meleagris gallopavo]. < *Forest and Stream*, xiii, Jan. 1, 1879, p. 947.

Chiefly on the early history of the Domestic Turkey in Europe, the origin of which species is held to be the Mexican bird. The article includes copious extracts from Bennett's *Gard. and Menag. Zool. Soc. London.*

Tetraonidæ.

1729. Roberg, L. Diss. phys. de Lagopode gallinacea et congeneribus. Præs. L. Roberg, Resp. M. Lithenius, W. Gothus. Upsaliæ. 1729. 4to. pp. 26.

Not seen.

1755. Edwards, G. A Letter to Mr. Peter Colluson, F. R. S. concerning the Pheasant of Pensylvania, and the Otis Minor. <*Philos. Trans. for* 1754, xlviii, pt. ii, 1755, pp. 499–503, pll. xv, xvi.

A fair account and figure of the Ruffed Grouse, subsequently the *Tetrao umbellus* or *Bonasa umbellus* of authors.

1774. Barrington, D. Observations on the Lagopus or Ptarmigan. <*Philos. Trans. for* 1773, lxiii, 1774, pp. 224–230.

General structure and relationships, and habits.

1776. Montin, L. Tvänne arter af Snöripan [Lagopus]. <*Physiogn. Sällsk. Handl.*, i, 1776, pp. 150–155.

Not seen.

1782. Lapeyrouse, P. de. Histoire naturelle du Lagopède (Tetrao Lagopus). <*Hist. et Mém. de l'Acad. de Toulouse*, i, 1782, pp. 111–127.

Pas vue moi-même—le titre tiré de Carus et Engelmann.

1784? Lapeyrouse, P. de. Histoire Naturelle du Lagopède. Toulouse. 1784? 4to. pp. 17.

Pas vue moi-même.—Voir 1782, même auteur.

1825. Editorial. Winter Change of Colour of the Ptarmigan [Lagopus]. <*Edinb. Philos. Journ.*, xiii, 1825, p. 390.

Note on Faber's and Boie's opinions.

1827. Bonaparte, C. L. Notice of a nondescript Species of Grouse [Tetrao urophasianus], from North America. <*Zoological Journ.*, iii, 1827, pp. 212, 213.

1828. Anon. Notice sur une espèce non décrite de Coq de bruyère, habitant l'Amérique du Nord; par M. Charl. Luc. Bonaparte. . . . <*Féruss. Bull.*, 2e sect., xiv, 1828, p. 117.

Extraite du *Zool. Journ.*, iii, 1827, pp. 212, 213.

1828. Nilsson, S. Ripors ömsning af Klor. <*Vetensk.-Akad. Årsb. i Zool.*, 1828, pp. 104–106.

On *Lagopus*: not seen by me.

1828. Nilsson, S. Ripors fjäderömsning. <*Vetensk.-Akad. Årsb. i Zool.*, 1828, pp. 106, 107.

On *Lagopus*: not seen by me.

1828. Scouler, J. Account of the Tænia found in the Intestines of the Common Grouse (Tetrao [Lagopus] scoticus). <*Edinb. New Philos. Journ.*, vi, 1828, pp. 81–83.

1829. Douglas, D. Observations on some Species of the Genera Tetrao and Ortyx, natives of North America; with Descriptions of Four new Species of the former, and Two of the latter Genus. <*Trans. Linn. Soc.*, xvi, pt. iii, 1829, pp. 133–149. ("Read" Dec. 16, 1828; pub. in 1829, though whole vol. dates 1833.)

This paper is wrongly given in most bibliographies as dating 1833—obviously so, for it is reprinted in 1829, and reviewed in *Oken's Isis* and in *Férussac's Bull.* in 1830.

Tetrao urophasianus Bp., *Zool. Journ.*, iii, 1827, p. 212, fully described, p. 133. *T. urophasianellus*, p. 136; *T. sabini*, p. 137; *T. franklinii*, p. 139; *T. richardsonii*, Sab. MS., p. 141. *Ortyx picta*, p. 143; *O. douglassii*, Vig. MS., p. 145. There are given full accounts of the habits of some of these species; with field-notes on various other N. A. *Tetraonidæ*.

Abstracts in *Philos. Mag.*, v, 1829, pp. 73, 74; *Edinb. New Philos. Journ.*, 1830, pp. 372–376; *Féruss. Bull.*, xx, 1830, pp. 326–331; *Oken's Isis*, xxxiii, 1830, pp. 917–920.

1829. DOUGLAS, D. Observations on some species of the Genera Tetrao and Ortyx, natives of North America, with descriptions of four [lately] new species of the former, and two of the latter genus. < *Philos. Mag.*, v, 1829, pp. 73, 74.
From *Trans. Linn. Soc.*, xvi, pt. iii, 1829, pp. 133–149, *q. v.*

1830. BONAPARTE, C. L. Ueber einen neuen Tetrao [urophasianus] aus Nordamerica. < *Oken's Isis*, Bd. xxiii, 1830, p. 1160.
Aus d. *Zool. Journ.*, iii, 1827, pp. 212, 213.

1830. BONAPARTE, C. L. General Observations on the Birds of the Genus Tetrao; with a Synopsis of the species hitherto known. < *Trans. Amer. Philos. Soc.*, 2d ser., iii, 1830, pp. 383–394.
3 genn. *Bonasia*, 2 spp.; *Tetrao*, 8 spp.; *Lagopus*, 3 spp.

1830. DOUGLAS, D. Ueber einige nordamericanische Gattungen von Tetrao u. Ortyx. < *Oken's Isis*, Bd. xxiii, 1830, pp. 917–920.
Uebersetzt aus d. *Linn. Trans.*, xvi, pt. iii, 1829, pp. 133–149, *q. v.*

1830. [DOUGLAS, D.] Observations sur quelques espèces des genres Tetrao et Ortyx, de l'Amérique septentrionale. < *Féruss. Bull.*, 2e sect., xx, 1830, pp. 326–331.
Précis, par Lesson, de l'article inseré dans les *Trans. Linn. Soc.*, xvi, pte. iii, 1829, pp. 133–149, *q. v.* Les descriptions des espèces nouvelles se trouvent reproduites ici.

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Anonymous article. See DOUGLAS, D., 1829 and 1830.

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The second of the author's well-known series of magnificent monographs, succeeding that of the *Pittidæ*. The work is modelled after the plan of Mr. Gould's various folio publications. It originally appeared in 5 parts—parts i, ii, 1864; iii–v, 1865. Twenty-three species are treated, under 10 genera. The apparently new names proposed were previously established by the author in the *Proc. Phila. Acad.*, 1864, p. 23. Pl. 1, *Bonasa umbellus;* 2, *B. umbelloides;* 3, *B. sabinei;* 4, *B. sylvestris;* 5, *Tetrao urogallus;* 6, *T. urogalloides;* 7, *Dendragapus obscurus;* 8, *D. richardsonii;* 9, *Canace canadensis;* 10, *C. franklinii;* 11, *Falcipennis hartlaubi;* 12, *Lyrurus tetrix;* 13, *Centrocercus urophasianus;* 14, *Pediecœtes* (sic—lege *Pediœcetes*) *columbianus;* 15, *P. phasianellus;* 16, *Cupidonia cupido;* 17, 18, *Lagopus albus;* 19, *L. scoticus;* 20, *L. persicus;* 21, 22, *L. mutus;* 23, *L. rupestris;* 24, *L. hyperboreus;* 25, *L. leucurus;* 26, 27 (marked i, ii), eggs of 17 species. The plates of Part I were Nos. 13, 7, 14, 10, 2, 25; of Pt. II, 3, 9, 12, 15, 4, 19; Pt. III, 16, 5, 8, 20, 17, 18; Parts IV and V, published together, contained the rest. The above numeration of the plates is according to a sheet of letter-press introduced with the completion of the work, in 1865; the sequence indicated being different from that in which they first appeared. The title is quoted from the made-up vol. Cf. *Ibis*, 1865, pp. 228, 345; 1866, pp. 213, 214; *Zool. Rec.* for 1864 and for 1865.

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Letters from S. F. Baird, E. Coues, and other contributions to the subject, with reference to *Am. Nat.*, vi, 1872, p. 172.

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Quoted from "Poultry Bulletin"; domestication of this species deemed impracticable.

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1873. RIDGWAY, R. The Grouse and Quails of North America. Discussed in relation to their variation with habitat. < *Forest and Stream*, i, Dec. 18, 1873, pp. 289, 290.

1873. "V." A Rare case of Albinoism [in Cupidonia cupido]. < *Am. Sportsman*, iii, 1873, p. 75.

Six out of a brood of fourteen having albinistic marks.

1873. WHITE, J. Canadian Partridge [Canace canadensis]. < *Am. Sportsman*, ii, 1873, p. 171. See also ensuing paragraph.

Instances of poisoning following the eating of the flesh of this species.

1874. ANON. Importation of pinnated and ruffed grouse [Cupidonia cupido and Bonasa umbellus] into England. < *Forest and Stream*, ii, April 16, 1874, p. 152. See also p. 233.

1874. ANON. [EDITORIAL.] Prairie Fowl [Cupidonia cupido] in England. < *Forest and Stream*, iii, Aug. 20, 1874, p. 24. See Vol. ii, p. 408.

Failure to introduce them into England, and comments thereon.

1874. ANON. The pinnated grouse [Cupidonia cupido] in England. < *Forest and Stream*, ii, Aug. 6, 1874, p. 408. See Vol. iii, p. 24.

Failure of attempt to introduce them into England.

1874. BARBER, L. A Grouse [Bonasa umbellus] Hiding in Water. < *Am. Sportsman*, iv, 1874, p. 203.

1874. BATTY, J. H. The Dusky Grouse (Tetrao Obscurus). < *Am. Sportsman*, iii, 1874, p. 342.

1874. BATTY, J. H. How the Ruffed Grouse [Bonasa umbellus] drums. <*Am. Sportsman*, iii, 1874, p. 379. See also p. 322, and iv, pp. 7, 38.

Reply to Mr. Ridgway's article on the same subject, p. 322. Maintains that the drumming noise is made by striking together the exterior surfaces of the wings above the back.

1874. BATTY, J. H. Has the Ruffed Grouse [Bonasa umbellus] Ceased to Fear the Presence of Man? <*Am. Sportsman*, iv, 1874, p. 38.

Reply to Wm. Brewster concerning timidity of *Bonasa umbellus;* and maintaining the theory advocated *ibid.*, iii, p. 322.

1874. BATTY, J. H. The White-tailed ptarmigan—Lagopus leucurus. <*Forest and Stream*, i, Jan. 29, 1874, p. 390.

1874. BREWER, T. M. [Description of the Egg of Lagopus leucurus.] <*Forest and Stream*, ii, Mar. 26, 1874, p. 103.

1874. BREWER, T. M. Note on the Nesting and Eggs of Lagopus leucurus. <*Proc. Bost. Soc. Nat. Hist.*, xvi, 1874, pp. 348, 349.

MS. from T. M. Trippe; locality near Idaho Springs, Colorado; date June 28, 1873; altitude 1,000 feet above timber-line.

1874. BREWSTER, W. The Ruffed Grouse [Bonasa umbellus] again. <*Am. Sportsman*, iv, 1874, p. 74. See also p. 7.

Reply to Mr. Batty (*ibid.*, p. 38) in further explanation of drumming of *Bonasa umbellus.*

1874. BREWSTER, W. The Drumming of the Ruffed Grouse [Bonasa umbellus]. <*Am. Sportsman*, iv, 1874, p. 7.

Confirming observations recorded *ibid.*, iii, p. 322, and controverting theory expressed *ibid.*, iii, p. 379. The present writer maintains that the drumming is produced by forcible downward stroke of the wings.

1874. "E. M. M." Drumming of the Ruffed Grouse [Bonasa umbellus]. <*Am. Sportsman*, iv, 1874, p. 28.

1874. "CORPORAL." The Ruffed Grouse [Bonasa umbellus]. <*Am. Sportsman*, iv, 1874, p. 108.

1874. FERGUSON, N. Introduction of Pinnated Grouse [Cupidonia cupido]. A Theory. <*Am. Sportsman*, iii, 1874, p. 245. See also p. 182.

Suggestions as to introducing it into the Eastern States.

1874. H[ARVEY], M. The Ptarmigan [Lagopus spp.] of Newfoundland. <*Forest and Stream*, ii, Aug. 6, 1874, p. 404.

General account of *Lagopus albus* and *L. rupestris.*

1874. "HI! ON!" The Sharp-tailed Grouse [Pediœcetes phasianellus]. <*Am. Sportsman*, iii, 1874, p. 231. See also pp. 267 and 315.

1874. H[OLBERTON], W. C. Pinnated grouse [Cupidonia cupido] for New Jersey. <*Forest and Stream*, ii, Apr. 9, 1874, p. 131.

Account of former abundance of this Grouse in New Jersey.

1874. "K." Mountain Grouse [Canace obscurus]. <*Am. Sportsman*, v, Oct. 24, 1874, p. 49.

1874. M[CELWRAITH, A?]. Pinnated Grouse—[Cupidonia] Cupido. <*Am. Sportsman*, iv, 1874, p. 83.

1874. "R. H. B." Habits of the Pinnated Grouse [Cupidonia cupido]. <*Am. Sportsman*, iii, 1874, p. 346. See also p. 182.

1874. RIDGWAY, R. Why and How does the Ruffed Grouse [Bonasa umbellus] drum. <*Am. Sportsman*, iii, 1874, p. 322.

This article gave rise to an animated discussion, each part of which will be found catalogued under its own title, printed on p. 379 of Vol. iii, and pp. 3, 7, 28, 38, 74, and 108 of Vol. iv.

1874. RIDGWAY, R. A remarkable peculiarity [slight muscularity of the gizzard] of Centrocercus Urophasianus. <*Am. Nat.*, viii, 1874, p. 240.

1874. [SMITH, GREENE.] Pinnated Grouse (Prairie Hens [Cupidonia cupido]). <*Forest and Stream*, ii, July 2, 1874, p. 324.

Experience with this species in confinement.

1874. "VETERAN." The sage cock [Centrocercus urophasianus]. < *Forest and Stream*, ii, Mar. 12, 1874, p. 66.

1874. "VETERAN." The blue grouse [Canace obscurus]. < *Forest and Stream*, ii, May 21, 1874, p. 230.
Circumstantial observations upon habits.

1874. [WESTCOTT, C. S.] Do pinnated grouse [Cupidonia cupido] remain in "packs" all the season? < *Forest and Stream*, iii, Oct. 1, 1874, p. 116.
Affirmed.

1875. ANON. Pinnated grouse [Cupidonia cupido] in England. < *Forest and Stream*, v, Aug. 12, 1875, p. 4.
Reprinted from "Land and Water."

1875. ANON. The sharp-tailed grouse—(Pediœcetes Phasianettus—Elliot). < *Forest and Stream*, v, Oct. 7, 1875, p. 131.

1875. ANON. Sagacity of the Partridge [?]. < *Rod and Gun*, vi, Aug. 21, 1875, p. 315.

1875. ANON. Disease in grouse. < *Rod and Gun*, vi, Apr. 17, 1875, p. 41.
Quoted remarks of Andrew Wilson at Edinburgh University.

1875. ANON. [EDITORIAL.] Quail and pinnated grouse [introduced] in England. < *Forest and Stream*, iv, Apr. 15, 1875, p. 153.

1875. B[ANES], J. DE. The Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, iv, May 13, 1875, p. 213.
Circumstantial biography.

1875. CARDE, B. F. S. Singular boldness of a partridge [Bonasa umbellus]. < *Forest and Stream*, v, Nov. 25, 1875, p. 243.

1875. "FRED." Calling of pinnated grouse [Cupidonia cupido]. < *Rod and Gun*, vi, June 19, 1875, p. 183.

1875. "MORTIMER." Grouse [Bonasa umbellus, acclimated] on Staten Island. < *Forest and Stream*, iv, Feb. 11, 1875, p. 11.

1875. "ROAMER." Cock grouse [Bonasa umbellus] protecting nests. < *Forest and Stream*, iv, July 1, 1875, p. 326.

1876. ANON. Early Nidification of Ruffed Grouse [Bonasa umbellus, April 29]. < *Forest and Stream*, vi, May 18, 1876, p. 233.

1876. COUES, E. On the Breeding-habits, Nest, and Eggs, of the White-tailed Ptarmigan (Lagopus leucurus). < *Bull. U. S. Geol. Surv. Terr.*, 2d ser., No. 5, Jan. 8, 1876, pp. 263–266.
From fresh material from Southern Colorado, here fully described.

1876. "GIPSEY." A Lucky partridge [Bonasa umbellus]. < *Forest and Stream*, vi, Feb. 10, 1876, p. 4.

1876. "J." Self-protection in the grouse [Bonasa umbellus]. < *Forest and Stream*, vi, Aug. 3, 1876, p. 418.

1876. "PENOBSCOT." [LIBBEY, D. S.] Winter Habits of the Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, v, Jan. 13, 1876, p. 356.

1876. SCOTT, DAVID. The Drumming of the Ruffed Grouse. (Bonasa umbellus.) < *Field and Forest*, ii, No. 4, Oct., 1876, pp. 57–60.
The writer concludes in the hope of discovering, "ere long," how and why it is done.

1876. STANTON, W. Singular Incident. < *Forest and Stream*, vii, Nov. 9, 1876, p. 212.
Bonasa umbellus crashing through two windows and an intervening room.

1877. ALDRICH, C. Destruction of Birds [Cupidonia cupido] by Telegraph Wires. < *Am. Nat.*, xi, No. 11, Nov., 1877, pp. 686, 687.
Referring to E. Coues's observations on the subject at large, the writer instances Prairie Chickens in further illustration of the fact.

1877. ALDRICH, C. Destruction of Birds [Cupidonia cupido] by Telegraph Wires. < *The Country*, i, Dec. 8, 1877, p. 79.
Reprinted from *Am. Nat.*, Nov., 1877, pp. 636, 687.

1877. ANON. [EDITORIAL.] Are the Prairie Chickens [Cupidonia cupido] Going to California? < *Forest and Stream*, ix, Dec. 27, 1877, p. 397.

Reported westward migration [later shown to be erroneous].

1877. ANON. Taming Prairie Chickens [Cupidonia cupido]. < *Rod and Gun*, ix, Mar. 17, 1877, p. 374.

Reprinted from "Canadian Gentleman."

1877. ANON. Save the Prairie Chickens [Cupidonia cupido]. < *Rod and Gun*, ix, Mar. 31, 1877, p. 409.

Reprinted from St. Paul (Minn.) "Pioneer-Press."

1877. "AWAHSOOSE." [ROBINSON, R. E.] A few words concerning ruffed grouse [Bonasa umbellus]. < *Forest and Stream*, ix, Dec. 6, 1877, p. 346.

1877. BREWSTER, W. An undescribed Hybrid between two North American Grouse. < *Bull. Nutt. Ornith. Club*, ii, No. 3, July, 1877, pp. 66–68.

Cupidonia cupido × *Pediœcetes columbianus*; named *C. cupidini-columbiana*, p. 68.

1877. COUES, E. Letters on Ornithology. No. 13 [bis = 14].—[Cupidonia cupido as a destroyer of] Grasshoppers. < *The Chicago Field*, Mar. 17, 1877, fig.

Urging the important services of this bird as one of the natural agencies by which *Caloptenus spretus* is held in check.

1877. [EDITORIAL.] Frank Schley's American Partridge and Pheasant Shooting. < *Rod and Gun*, ix, Feb. 3, 1877, p. 279.

Review of above-mentioned work, published by Baughman Bros., Frederick, Md., 1877.

1877. INGERSOLL, E. Notes of the U. S. Geological Survey—No. 1. < *Forest and Stream*, viii, July 19, 1877, p. 407.

Observations upon *Centrocercus urophasianus*.

1877. LAWRENCE, G. N. A Note on Cupidonia cupido var. pallidicinctus, Ridgway. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, p. 52.

Recognizing this variety among the Prairie Chickens brought to Eastern market.

1877. MURDOCK, A. American Grouse. < *Forest and Stream*, ix, Aug. 23, 1877, p. 44.

Criticisms upon certain alleged habits.

1877. "MONON." [LAURIE, J.] Cupidonia Cupido.—How the Prairie Chickens Woo. < *Forest and Stream*, ix, Nov. 22, 1877, p. 307.

1877. "PENOBSCOT." [LIBBEY, D. S.] Habits of the Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, ix, Sept. 27, 1877, p. 143.

1877. S[MITH], J. T. B. The Ruffed Grouse [Bonasa umbellus]—A Query. < *Forest and Stream*, ix, Sept. 6, 1877, p. 85.

Female parent transporting her young.

1877. "STONY ISLAND." Ruffed Grouse [Bonasa umbellus] Shooting. < *Rod and Gun*, ix, Feb. 10, 1877, p. 290.

1877. WILLIAMS, W. H. An interesting question [respecting Bonasa umbellus]. < *Forest and Stream*, ix, Dec. 13, 1877, p. 366.

Is there a disparity in numbers between the sexes of Ruffed Grouse?

1878. ANON. Ruffed Grouse's [Bonasa umbellus] Drumming. < *Forest and Stream*, ix, Jan. 10, 1878, p. 430.

The operation not entirely confined to the pairing season.

1878. ANON. [EDITORIAL.] Ruffed Grouse [Bonasa umbellus] in Texas. < *Forest and Stream*, x, May 9, 1878, p. 256.

1878. ——. Habits of the Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, ix, Jan. 17, 1878, p. 450; Jan. 24, 1878, p. 469; x, Mar. 7, 1878, p. 76; Mar. 21, 1878, p. 177.

This head covers a series of letters from a dozen or more correspondents on the subject of the habits of the Ruffed Grouse, with special reference to the "drumming" of that bird.

1878. ——. [Discussion and correspondence relative to alleged] Prairie chickens in California and Colorado. < *Forest and Stream*, x, May 23, 1878, p. 296. See p. 175.

1878. "AWAHSOOSE." [ROBINSON, R. E.] Eccentricities of the Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, xi, Nov. 21, 1878, p. 321.

1878. COOPER, J. G. Californian Prairie Chickens. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 96.

Being *Pediœcetes columbianus* instead of the alleged *Cupidonia cupido*. There was a good deal of newspaper matter on the subject about this time, all founded in error, the supposed Prairie Chickens west of the Rocky Mountains being Sharp-tailed Grouse.

1878. COUES, E. The Willow Grouse [Lagopus albus] in New York. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 41.

1878. [GRINNELL, G. B.] About our Grouse. < *Forest and Stream*, xi, Oct. 31, Nov. 7, 14, 21, and Dec. 5, 1878, pp. 259, 280, 299, 300, 319, 320, 360.

Notes on the habits of the less known *Tetraonidæ* of North America.

1878. HENSHAW, H. W. Prairie chickens in Nevada. < *Forest and Stream*, x, Apr. 11, 1878, p. 175. See p. 296.

Cupidonia cupido not extending its range westward.

1878. "J. N." A singular combat [between a male Tetrao canadensis and a dunghill Cock]. < *Forest and Stream*, x, Feb. 14, 1878, p. 18.

1878. NELSON, E. W. The Rock Ptarmigan (Lagopus rupestris) in the Aleutian Islands. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 38.

1878. NEWTON, A. [Remarks on Exhibition of a supposed hybrid between Lagopus scoticus and L. mutus.] < *P. Z. S.*, Nov. 5, 1878, p. 793.

1878. "PENOBSCOT." [LIBBEY, D. S.] Drumming of the Ruffed and Canada Grouse [Bonasa umbellus, Canace canadensis]. < *Forest and Stream*, xi, Sept. 19, 1878, p. 131.

1878. "RUFFED GROUSE." Habits of the Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, x, 1878, pp. 215, 274. See pp. 76, 117.

Letters also from "Awahsoose" (R. E. Robinson), and "D. C. M."

1878. "SANGER." Two Sides to the Question [of preponderance of males over females in Bonasa umbellus]. < *Forest and Stream*, ix, Jan. 31, 1878, p. 489.

1878. "SNAPSHOT." The Grouse Family [Tetraonidæ] of Oregon. < *San Francisco Chronicle*, Jan. 20, 1878.

Biographical.

1878. STEARNS, R. E. C. The Prairie Chicken in California. < *Am. Nat.*, xii, No. 2, 1878, p. 124, 125.

Supposed to be *Cupidonia*—proved afterward to be *Pediœcetes*.

1879. ANON. The Partridge fly. < *Forest and Stream*, xi, Jan. 9, 1879, p. 462.

Discussion by the editor, "Straight-bore" (Morton Robinson), and C. H. Hope, of a parasite of *Bonasa umbellus*, supposed to belong to genus *Hippobosca*.

1879. ANON. The Ruffed Grouse [Bonasa umbellus]: a semi-soliloquy. < *The Oölogist*, v, No. 1, July, 1879, p. 1.

Poem.

1879. BENDIRE, C. Notes on the Dusky Grouse (Canace obscurus). < *The Oölogist*, iv, No. 12, summer 1879 (extra number), pp. 98, 99.

From his paper on *Birds of Southeastern Oregon*, in *Proc. Bost. Nat. Hist. Soc.*

1879. B[REWER], T. M. Not Pinnated Grouse. < *Forest and Stream*, xi, Jan. 2, 1879, p. 441.

Denying that *Cupidonia cupido* has strayed to the Pacific Slope.

1879. B[YERS], W. N. The Sage Grouse [Centrocercus urophasianus]. < *Forest and Stream*, xi, Jan. 2, 1879, p. 440.

1879. B[YERS], W. N. The Flesh of the Sage Grouse [Centrocercus urophasianus]. < *Forest and Stream*, xii, May 22, 1879, p. 307.

Reply to editorial comments on previous article on this topic, the writer protesting against the manner in which the discussion of the question was closed.

1879. CLARK, M. W. Domesticated Ruffed Grouse [Bonasa umbellus]. < *Forest and Stream*, xii, May 29, 1879, p. 326.

1879. C[LARKE], S. C. Habitat of Sharp-tailed Grouse [Pediœcetes phasianellus columbianus]. < *Forest and Stream*, xiii, Oct. 9, 1879, p. 705.

1879. CREIGHTON, R. J. Exportation of Quail [i. e., Cupidonia cupido]. < *Forest and Stream*, xii, Mar. 13, 1879, p. 120.

History of the lot of Pinnated Grouse shipped from Kansas to New Zealand.

1879. "DINGO." Pinnated Grouse [Cupidonia cupido] for New Zealand. < *Forest and Stream*, xii, Feb. 13, 1879, p. 31.

Notice of a shipment of 28 birds of this species for New Zealand.

1879. DUTTON, J. W. Drumming of the Canada Grouse [Canace canadensis]. < *Forest and Stream*, xiii, Nov. 20, 1879, p. 827.

1879. [GRINNELL, G. B.] Not Pinnated Grouse [Cupidonia cupido]. < *Forest and Stream*, xi, Jan. 2, 1879, p. 440.

Editorial remarks replying to statement of a correspondent that "prairie chickens" are found in Nevada, pointing out the fact that evidence of the occurrence of *Cupidonia cupido* so far west is still wanting.

1879. [GRINNELL, G. B.] Grouse [Cupidonia cupido] For New Zealand. < *Forest and Stream*, xii, Mar. 13, 1879, p. 119.

1879. [GRINNELL, G. B.] Drumming of the Spruce Partridge [Canace canadensis]. < *Forest and Stream*, xiii, Sept. 11, 1879, p. 625.

1879. HARDY, M. Notes on the Habits of the Ruffed Grouse [Bonasa umbellus]. < *The Temperance Vedette* (newspaper of Terrell, Texas), Dec. 6, 1879.

Quoted from *The Oölogist*.

1879. R[ICH], J. G. Drumming of the Canada Grouse [Canace canadensis]. < *Forest and Stream*, xiii, Oct. 2, 1879, p. 684.

1879. [SAMUELS, E. A.] Canada Grouse, Tetrao canadensis. Linnæus. < *Town and Country* (monthly newsp., Boston, Mass.), i, No. 10, Oct., 1879, p. 1, fig.

A short notice, with a figure from the author's 'Birds of New England', after Audubon.

1879. "TRANSIT" [RICHARDS, —,] *and* "INCOG." [GRINNELL, M.] The Flesh of the Sage Grouse [Centrocercus urophasianus]. < *Forest and Stream*, xii, Mar. 6, 1879, p. 85.

Different opinions as to the gastronomic quality of this bird's flesh.

1879. W[EBSTER], J. W. Destruction of Ruffed Grouse [Bonasa umbellus] in Connecticut. < *Forest and Stream*, xiii, Oct. 2, 1879, p. 684.

Destruction of the young of this species by the larvae of *Olfersia americana*, Leach.

1879. WRIGHT, M. M. How the Ruffed Grouse [Bonasa umbellus] Drums. < *Town and Country, the People's Monthly Journal* (Boston), i, No. 3, Mar., 1879.

The wings beat the air, but neither the body of the bird, nor the log, nor each other.

As may be seen from many of the foregoing titles, there was for a time considerable discussion in the sporting papers and elsewhere, respecting the mechanics and acoustics of this remarkable operation; and the same subject has often been taken up in general works which have occasion to treat of the Ruffed Grouse. Opinions have been advanced: 1) That the outsides of the wings strike each other over the bird's back; 2) that the insides of the wings strike the bird's body; 3) that the wings strike the log or other hard object on which the bird stands; 4) that the wings beat the air with such rapidity as to produce the vibrations in which the "drumming" sound consists. It would appear to be impossible that the peculiar sound should be produced in any other than one of these four ways; and the balance of evidence is in favor of the last named, as held by the present writer and others.

Perdicidæ.

1830. VIGORS, N. A. [Observations on the Genus Ortyx, with characters of two New Species—O. neoxenûs, O. affinis, p. 3.] < *P. Z. S.*, i, 1830, pp. 2–4.

1831. "J. C." Notice of an Attempt to naturalise the Virginia Partridge [Ortyx virginiana] in England. < *Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 16–18, fig. 8.

1831. [EDITORIAL]. [Abstract of Mr. Vigor's remarks on a Gallinaceous group (Ortyginæ) of America which supplies in that continent the place of the Quails of the Old World.] < *Philos. Mag.*, ix, 1831, pp. 54, 55.

From *P. Z. S.*, Nov. 4, 1830, pp. 2–4.

1832. LLAVE, P. DE LA. Sobre tres especies nuevas del género Tetrao [Ortyginæ]. < *Registro Trimestre* (Mexico), i, núm. 2, Abril de 1832, pp. 141–145.

The genus *Tetrao* is here equivalent to three modern genera of *Ortyginæ* or *Odontophorinæ*. None of the species here described as new is really so. *Tetrao marmorata*, p. 144, is *Dendrortyx macroura* (Jard. and Selby); *T. cristata*, p. 144, is *Callipepela squamata* (Vig.); and *T. guttata*, p. 145, is *Cyrtonyx massena* (Less.) There is a French translation in *R. M. Z.*, xiii, 1861, pp. 425–429.

1833. D[ENSON], J. The Virginian Partridge [Ortyx virginiana]. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 153.

On its introduction in England.

1834. VIGORS, [N. A.] Ueber die Wachteln [Ortyginæ] der neuen Welt. < *Oken's Isis*, Bd. xxvii, 1834, p. 806.

Auszug aus *Philos. Mag.*, Bd. ix, 1831, pp. 54, 55.

1836. GOULD, J. [Characters of a New Species of Ortyx (ocellatus) from Mexico.] < *P. Z. S.*, iv, 1836, pp. 75, 76.

1837. GOULD, J. [On a New Species of Ortyx (plumifera) from the collection of the late Mr. David Douglas.] < *P. Z. S.*, v, 1837, p. 42.

1839. GOULD, J. [Ortyx plumifera n. sp. aus Californien.] < *Oken's Isis*, Bd. xxxii, 1839, p. 145.

Aus *P. Z. S.*, v, Apr. 11, 1837, p. 42.

1841. CONTRAINE, F. Observations sur le Conin sonnini . . . < *Bull. Acad. Bruxelles*, 2e sér., viii, 1841, pp. 113–116.

Pas vues moi-même.

1842. GOULD, J. [On various New Species of Ortyx.] < *P. Z. S.*, x, 1842, pp. 181–184.

O. nigrogularis, p. 181; *O. pectoralis*, *O. castanea*, p. 182; *O. stellata*, p. 183.

1843. CABOT, S., JR. [On a species of Ortyx (nigrogularis) discovered by him in Yucatan.] < *Proc. Bost. Soc. Nat. Hist.*, i, 1843, p. 151.

Cf. *Stephens' Incidents of Travel in Yucatan*, i, App., p. 474.

1843. GOULD, J. [Descriptions of Ortyx parvicristatus and O. marmoratus, spp. nn.] < *P. Z. S.*, xi, 1843, pp. 106, 107.

1843. GOULD, J. Descriptions of four New Species of Ortyx. < *P. Z. S.*, xi, 1843, pp. 132–134.

Ortyx leucophrys, p. 132; *O. fasciatus*, *O. leucotis*, p. 133; *O. strophium*, p. 134.

1843. GOULD, J. [New Species of Ortyx.] < *Ann. Mag. Nat. Hist.*, xii, 1843, pp. 284–286.

From *P. Z. S.*, Dec. 13, 1842.

1843. [RÉDACTEUR.] [Extrait d'un article sur la Caille des États-Unis, Perdix borealis Temm. (Ortyx virginiana), publié dans les Mémoires de la Soc. d'Agric. de l'Aube, 1842.] < *Revue Zoologique*, vi, 1843, pp. 223, 224.

1844. DENNY, H. Ortyx virginiana in Norfolk. < *Ann. Mag. Nat. Hist.*, xiii, 1844, pp. 405, 406.

1845. Gould, J. A Monograph of the Sub-family Odontophorinæ, or Partridges of America. < *Rep. Brit. Assoc. Adv. Sci. for* 1844, 1845 (*Misc. Comm.*), pp. 61, 62.

Here only a notice of the monograph, including an abstract of some points given respecting the birds themselves.

1847. Abert, J. W. [On the Habits of Ortyx (Callipepla) squamata, Vigors, as observed in New Mexico.] < *Proc. Acad. Nat. Sci. Phila.*, iii, 1847, pp. 221, 222.

1848. Gambel, W. Description of a new Mexican Quail [Ortyx thoracicus]. < *Proc. Acad. Nat. Sci. Phila.*, iv, 1848, p. 77.

1849. Gambel, W. Description of a [lately] new Mexican Quail [Ortyx thoracicus]. < *Ann. Mag. Nat. Hist.*, 2d ser., iii, 1849, pp. 317, 318.

From *Proc. Acad. Nat. Sci. Phila.*, iv, 1848, p. 77.

1850. Gould, J. A Monograph | of | The Odontophorinæ, | or | Partridges of America. | By John Gould, F. R. S., | [etc., etc.] | London: | printed by Richard and John E. Taylor, Red Lion Court, Fleet street. | Published by the author, 20, Broad street, Golden Square. | 1850. 1 vol. folio. pp. 23 of introd., rest not paged; pll. col'd 32.

7 genn., 35 spp., 32 of which are figured. Pl. I, *Ortyx virginianus*; II, *O. cubanensis*; III, *O. castaneus*; IV, *O. nigrogularis*; V, *O. pectoralis*; VI, *O. coyolcos*; VII, *Cyrtonyx* (n. g., p. 14) *massena*; VIII, *C. ocellatus*; IX, *Eupsychortyx* (n. g., p. 15) *cristatus*; X, *E. leucotis*; XI, *E. sonninii*; (*E. affinis* not fig.); XII, *E. parvicristatus*; XIII, *E. leucopogon*; XIV, *Philortyx* (n. g., p. 17) *fasciatus*; XV, *Callipepla picta*; XVI, *C. californica*; XVII, *C. gambeli*; XVIII, *C. elegans*; (*C. douglassi* not fig.); XIX, *C. squamata*; XX, *Dendrortyx* (n. g., p. 20) *micrurus*; XXI, *D. leucophrys*; XXII, *D. barbatus* ("Licht. Mus. B."); XXIII, *Odontophorus guianensis*; (*O. marmoratus* not fig.); XXIV, *O. pachyrhynchus*; XXV, *O. speciosus*; XXVI, *O. dentatus*; XXVII, *O. stellatus*; XXVIII, *O. guttatus*; XXIX, *O. balliviani*; XXX, *O. columbianus*; XXXI, *O. strophium*; XXXII, *O. lineolatus*.

1850. Jones, J. M. Note on the Californian Quail [Lophortyx californica]. < *Zoologist*, viii, 1850, p. 2852.

1850. Reeves, W. W. Occurrence of the Virginian Colin (Coturnix Marylandica [Ortyx virginiana]) near Tunbridge Wells. < *Zoologist*, viii, 1850, p. 2700.

1850. Reeves, W. W. Occurrence of the Virginian Colin (Perdix Marylandica [Ortyx virginiana]) near Tunbridge Wells. < *Zoologist*, viii, 1850, p. 2771.

1853. Lawrence, G. N. Descriptions of New Species of Birds of the Genera Ortyx [texanus, p. 1] Stephens, Sterna Linn., and Icteria Vieillot. < *Ann. Lyc. Nat. Hist. N. Y.*, vi, 1853, pp. 1–4.

1854. Prévost, F. Note sur l'acclimatation du Colin houï [Ortyx virginiana] de l'Amérique du Nord. < *Bull. Soc. Acclim.*, i, 1854, pp. 247–251.

Avec une liste des Colins, Perdrix et Tétras susceptibles d'être acclimatés comme gibiers.

1854. Saulnier, —. Sur le Colin de Californie [Lophortyx californica] et sa reproduction, extrait d'une lettre addressée a M. le Président de la Société zoologique d'acclimatation. < *Bull. Soc. Acclim.*, i, 1854, pp. 303–305, fig.

1855. Coeffier, —. Le Colin houi [Ortyx virginiana] vulgairement nommé Perdrix d'Amérique, Extrait d'une lettre addressée à M. le comte d'Fprémesnil. < *Bull. Soc. Acclim.*, ii, 1855, pp. 143–146.

1856. Gould, J. Description of a New Trogon and a New Odontophorus [veraguensis, p. 107]. < *P. Z. S.*, xxiv, 1856, pp. 107, 108.

1857. Wiepken, C. F. Ein brütendes Männchen von Callipepla [Lophortyx] californica. < *Naumannia*, vii, 1857, pp. 264–266.

1859. Gould, J. On a new species of Odontophorus [erythrops]. < *P. Z. S.*, xxvii, 1859, pp. 98, 99.

1860. Elliot, D. G. Description of a new species of Eupsychortyx [leucofrenatus]. < *Ann. Lyc. Nat. Hist. New York*, vii, 1860, pp. 106, 107, pl. iii.

1860. Gould, J. On a [lately] new species of Odontophorus [erythrops]. < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, p. 72.

From *P. Z. S.*, Feb. 8, 1859, pp. 98, 99.

1860. Gould, J. Description of a New Species of American Partridge [Eupsychortyx hypoleucus]. < *P. Z. S.*, xxviii, 1860, pp. 62, 63.

1860. Gould, J. Description of a [lately] New Species of American Partridge [Eupsychortyx hypoleucus]. < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, p. 77.
From *P. Z. S.*, Jan. 24, 1860, pp. 62, 63.

1860. Gould, J. Description of a new Odontophorus [melanonotus]. < *P. Z. S.*, xxviii, 1860, p. 382.

1860? Verreaux, J. Description d'une nouvelle espèce d'oiseau [Cyrtonyx sallaei]. < *Arcana Naturae* (*Paris*), i, 1860?, p. —, pl. iv.
Not seen.—The bird is named *Cyrtonyx sallaei*, and is from Mexico.

1861. Laurence, A. Note sur l'acclimatation des Colins [Ortyx virginiana] en liberté. < *Bull. Soc. Acclim.*, viii, 1861, pp. 20–24.

1861. Llave, Pable de la. Sur trois espèces nouvelles du genre Tetrao [Ortyginæ]. < *Rev. et Mag. de Zool.*, xiii, 1861, pp. 425–429.
Extrait, traduit du *Registro Trimestre*, i, No. 2, Mexico, 1832, pp. 141–145.—*Tetrao marmorata* (= *Dendrortyx macroura*), *T. cristata* (= *Callipepla squamata*), et *T. guttata* (= *Cyrtonyx massena*). Voir 1832, même auteur.

1861. Gould, J. Description of a [lately] new Odontophorus [melanonotus]. < *Ann. Mag. Nat. Hist.*, 3d ser., vii, 1861, p. 149.
From *P. Z. S.*, Nov. 13, 1860, p. 382.

1861. Newton, A. [Gives J. Reinhardt's views on the Ortyges of St. Thomas.] < *Ibis*, iii, 1861, pp. 114, 115.

1862. Newton, A. [Remarks on exhibition of a Nest containing seventeen hatched-out eggs of Ortyx virginiana.] < *P. Z. S.*, xxx, 1862, p. 2.

1863. Freyburg, *Baron* v. [Fortpflanzung der californischen Wachtel (Lophortyx californica) in Gefangenschaft, u. s. w.] < *Zool. Gart.*, iv, 1863, pp. 231, 232; 234–237.

1864. Freyberg, *Baron* v. [Noch ein Wort über californische Wachteln (Lophortyx californica).] < *Zool. Gart.*, v, 1864, pp. 298, 299.

1864. Laurence, A. Reproduction des Colins de Californie [Lophortyx californica] en liberté. Lettre adressée a M. le président de la Société impériale d'acclimatation. < *Bull. Soc. Acclim.*, 2e sér., i, 1864, pp. 402–407.

1865. Bussière de Nercy, —. Note sur le Colin de Californie [Lophortyx californica] et son acclimatation en France. < *Bull. Soc. Acclim.*, 2e sér., ii, 1865, pp. 637, 638.

1866. Bussière de Nercy, —. Note sur une épidémie qui a sévi sur le Colin de Californie [Lophortyx californica]. < *Bull. Soc. Acclim.*, 2e sér., iii, 1866, pp. 599–602.

1866. Bussière de Nercy, —. Bemerkung über das Feldhuhn [Lophortyx californica] von Californien und seine Acclimatisation in Frankreich. < *Zool. Gart.*, vii, 1866, pp. 110, 111.

1866. Coues, E. Field Notes on Lophortyx gambeli. < *Ibis*, 2d ser., ii, 1866, pp. 46–55.
A considerable biography of the species, from original observations in Arizona.

1866. [Freyberg, — v.] [Ueber die Acclimatisation des kalifornischen Rebhuhns (Lophortyx californica).] < *Zool. Gart.*, vii, 1866, pp. 269, 270.
Vergl. *tom. cit.*, pp. 110, 111.

1868. Stephenson, J. W. Virginian Colin [Ortyx virginiana] at St. Mary's Cray, Kent. < *Zoologist*, 2d ser., iii, 1868, p. 1059.

1869. Fowler, A. The Virginia Partridge [Habits of Ortyx virginiana]. < *Am. Nat.*, iii, 1869, pp. 535–539.

1869. GEOFFROY SAINT-HILAIRE, A. Note sur les succès obtenus par MM. Louis Coignet et Léon Hennecart dans la multiplication des Colins de Californie [Lophortyx californica] en liberté. <*Bull. Soc. Acclim.*, 2e sér., vi, 1869, pp. 509–514.

1869. GEOFFROY SAINT-HILAIRE, A. [Sur l'éclosion des Colins; réponse à M. Deschamps.] <*Bull. Soc. Acclim.*, 2e sér., vi, 1869, pp. 707, 708.

1869. [THORPE, T. B.] Bob White [Ortyx virginiana]. <*Harper's New Monthly Mag.*, xxxix, Sept., 1869, pp. 505–512, figs. 1–6.

An account of this species and its congeners.

1870. WILSON, S. M. [Escaped] Californian Quail [Lophortyx californica] in Sussex. <*Zoologist*, 2d ser., v, 1870, pp. 2383, 2384.

1871. FREYBERG, *Baron* v. Züchtung der nordamerikanischer Baumwachteln [Ortyx virginiana]. <*Zool. Gart.*, xii, 1871, pp. 90, 91.

1872. WHITAKER, J., JR. [Escaped] Virginian Colin [Ortyx virginiana] in Nottinghamshire. <*Zoologist*, 2d ser., vii, 1872, p. 2994.

1873. "AMATEUR." Partridge vs. Quail. A Reply to Snap Shot. <*Am. Sportsman*, iii, 1873, p. 106. See also ibid., p. 11.

Concerning vernacular name of *Ortyx virginiana*.

1873. ANON. Quail catching in Syria. <*Am. Sportsman*, iii, 1873, p. 108.

1873. ANON. [EDITORIAL.] Eastern quail [Ortyx virginiana] in California. <*Am. Sportsman*, ii, 1873, p. 87.

Success of attempt to acclimate *Ortyx virginiana* on the Pacific coast.

1873. ANON. [EDITORIAL.] Take care of "Bob White" [Ortyx virginiana, in winter]. <*Am. Sportsman*, ii, 1873, p. 73.

1873. ANON. [EDITORIAL.] Suppression of Scent in Birds. <*Scribner's Monthly*, vi, 1873, p. 760.

Quoted from Tegetmeier.

1873. "CYPRESS, J., JR." [W. P. HAWES], "H", *and* "FRANK FORESTER" [W. H. HERBERT]. A Controversy concerning the genera and distinctions of Quail and Partridge. <*Am. Sportsman*, iii, 1873, pp. 98, 114, 130, 148, 162, 180.

This series of letters, in which much of the natural history of the *Perdicidæ* and *Tetraonidæ* is brought out, was reprinted from the *New York Mirror* and the *American Turf Register and Sporting Magazine*, to which they were addressed during 1840.

It forms a part of the interminable floating literature which evidences the absolute impossibility of teaching sportsmen at large whether a quail is a partridge, or whether a partridge is a quail, or whether one or the other or neither of these is a pheasant, or whether—but I forbear. The many titles bearing upon this subject will show how hopeless is the case. Scientists have not seldom attempted to set sportsmen right, but have generally had to give it up.

1873. "DAVID, JR." The Partridge. <*Am. Sportsman*, ii, 1873, p. 135. See also p. 166.

Comparison of the European *Perdix* with American *Ortyx*.

1873. "E. E. E." The California Partridge [Lophortyx californica]. <*Am. Sportsman*, ii, 1873, p. 83.

Proposed acclimation of this species in the Eastern U. S.

1874. ALLEN, J. M. Quail [Ortyx virginiana] eating pine-cone seeds. <*Am. Sportsman*, iv, 1874, p. 171.

1874. ANON. [EDITORIAL.] A name for the Quail [Ortyx virginiana]. <*Am. Sportsman*, iii, 1874, p. 248.

Urges adoption of "bob-white" as a distinctive name of this species.

1874. ANON. [EDITORIAL.] Quail [Ortyx virginiana] Bred and Breeding in the city. <*Forest and Stream*, ii, June 18, 1874, p. 292.

1874. ANON. The California quail [Lophortyx californica]. <*Forest and Stream*, iii, Aug. 27, 1874, p. 37.

1874. ANON. Quail [Ortyx virginiana] food [and manner of feeding]. < *Forest and Stream*, iii, Oct. 22, 1874, p. 164.

1874. COUES, [E.] Compliments of Mr. & Mrs. Robert White. < *Am. Sportsman*, iv, 1874, p. 65.
Accompanying portraits of male and female *Ortyx virginiana.*

1874. "E." Do quail [Ortyx virginiana] eat chinch bugs? < *Forest and Stream*, ii, Apr. 30, 1874, p. 180.

1874. "HOMO." [C. S. WESTCOTT.] "Do quail [Ortyx virginiana] voluntarily retain their scent." < *Forest and Stream*, i, Jan. 29, 1874, p. 390.
The negative maintained.

1874. "PIONEER." The scent question. < *Forest and Stream*, ii, Aug. 6, 1874, p. 405.
With respect to *Lophortyx californica.*

1874. "SCOTIA." Migration of Bob White [Ortyx virginiana]. < *Am. Sportsman*, iii, 1874, p. 290.

1874. TREETON, J. [Escaped] Virginian Quail [Ortyx virginiana] in Northamptonshire. < *Zoologist*, 2d ser., ix, 1874, p. 3835.

1874. "T. S. D." Albino Bob White [Ortyx virginiana]. < *Am. Sportsman*, iii, 1874, p. 283.

1874. WANMAKER, E. S. Do quail [Ortyx virginiana] withhold their scent? < *Forest and Stream*, ii, Apr. 30, 1874, p. 180. See p. 276.
Believes that a quiet, sitting bird would be readily overlooked by the dog; but that it could not voluntarily retain its scent. Much correspondence between gunners precedes and follows for several months, little of which has any permanent value, or brings out any new facts upon the subject.

1875. ANON. [Feeding habits of Ortyx virginiana]. < *Rod and Gun*, vi, July 3, 1875, p. 215; Aug. 7, p. 281.
Reprint. See also pp. 330, 370.

1875. ANON. Fertile Albinos [Ortyx virginiana]. < *Forest and Stream*, iv, Mar. 11, 1875, p. 69.
Reprinted from St. Louis "Republican", Mar. 3, 1875.

1875. BARNES, J. B. The Perdicidæ [of America]. < *Forest and Stream*, iii, Jan. 21, 1875, p. 372.

1875. ESTEY, T. H. White California quail [Lophortyx californica]. < *Forest and Stream*, iv, Feb. 11, 1875, p. 5.

1875. EVERTS, M. G. An Open Letter [concerning the Migratory Quail (Coturnix communis) of Europe, and the feasibility of its introduction into the United States]. < *Am. Sportsman*, v, Jan. 23, 1875, p. 264.

1875. GOLDSMITH, M. The migrating quail [Coturnix communis]. < *Rod and Gun*, vi, May 1, 1875, p. 65.
Habits, etc., in Europe; with reference to its introduction into America.

1875. H[OLBERTON], W. C. Quail [Ortyx virginiana, in winter]. < *Forest and Stream*, iv, Feb. 18, 1875, p. 24.

1875. "HOMO." [C. S. WESTCOTT.] A new variety of quail [Ortyx hoopesii sp. n.]. < *Forest and Stream*, v, Nov. 25, 1875, p. 243.
Editorial note appended, stating it to be abnormal plumage of *Ortyx virginiana.*

1875. "J. K. O." California Quail [Lophortyx californica, can probably be introduced into Eastern States]. < *Rod and Gun*, vi, June 19, 1875, p. 187.

1875. "PROTECTOR." How to raise quail [Ortyx virginiana]. < *Forest and Stream*, iii, Jan. 7, 1878, p. 345, 4 cuts.

1875. "RECAPPER." [T. O. ABBOTT.] Protect the American Quail [Ortyx virginiana]. < *Am. Sportsman*, v, Mar. 13, 1875, p. 378. See also p. 346.

1875. "T. C. A." Protect the American Quail [Ortyx virginiana]. < *Am. Sportsman*, v, Feb. 20, 1875, p. 346. See also p. 378.

1875. "WAHKONZA." Dearth of Quail [Ortyx virginiana]. < *Am. Sportsman*, v, Mar. 20, 1875, p. 394.

1876. "ALPHA." The Quail [Ortyx virginiana] Question. < *Rod and Gun*, viii, Apr. 29, 1876, p. 67.
Scent concealed by crouching bird.

1876. ANON. Migratory Quail [importation of Coturnix communis into the United States]. < *Forest and Stream*, vi, Mar. 30, 1876, p. 115.

1876. ANON. The Migration of the quail [Coturnix communis, at Malta]. < *Rod and Gun*, viii, July 8, 1876, p. 231.
Quoted from London "Times."

1876. ANON. [HALLOCK, C.] [Success in] Taming quail [Ortyx virginiana]. < *Forest and Stream*, vii, Oct. 5, 1876, p. 137.

1876. ———. Quail [Ortyx virginiana], etc. < *Rod and Gun*, viii, Apr. 15, 1876, p. 34.
Several letters upon the question of their withholding scent.

1876. "ARKANSAS." Quail [Ortyx virginiana, migratory or not?] < *Rod and Gun*, vii, Feb. 12, 1876, p. 307.

1876. BREWSTER, W. Can quail [Ortyx virginiana] withhold their scent? < *Rod and Gun*, vii, Feb. 26, 1876, p. 344.
Considers this power possessed by certain individual birds—not necessarily by all of certain bevies.

1876. "C. F. W. B." Do Quail [Ortyx virginiana, withhold scent?], etc. < *Rod and Gun*, viii, May 13, 1876, p. 99.
Views of German sportsmen.

1876. "CORDUROY", *and* OTHERS. Can Quail [Ortyx virginiana] Withhold Their Scent? < *Rod and Gun*, vii, Mar. 25, 1876, p. 402.
"CORDUROY" denies the power, and thinks concealment and the state of the weather furnish an explanation. BLUNT, GEORGE W., says No; scent naturally does not leave the bird while it remains quiet. "PERDIX CHICAGOENSIS" affirms it, as a conscious act by the bird, which can control the escape of scent from its skin at certain times.

1876. COUES, [E.] Dr. Coues upon Quail, etc. < *Rod and Gun*, viii, Apr. 1, 1876, p. 9.
Cannot voluntarily withhold scent; that is to say, by any act of conscious volition. But certain actions of the birds, without design, result in the retention of the effluvium—which may also be favored or hindered by certain surroundings, as state of the atmosphere.

1876. "HARRY." In the Woods. < *Rod and Gun*, vii, Jan. 8, 1876, p. 226.
Comments upon article "Bob-white" in *Harper's New Monthly Magazine* (xxxix, 1869, pp. 505-512, figs. 1-6), and additional notes on *Ortyx virginiana*.

1876. [INGERSOLL, E.] Red-legged Partridges [imported into the United States]. < *Forest and Stream*, v, Feb. 3, 1876, p. 404.

1876. LINDEN, C. The Scent of Birds [Ortyx virginiana]. < *Rod and Gun*, viii, Apr. 1, 1876, p. 6.
Discussion of the subject of withholding scent by quail.

1876. LOUDON, F. Can Quail [Ortyx virginiana] withhold their Scent? < *Rod and Gun*, vii, Feb. 25, 1876, p. 339.
Believes they can.

1876. "OLD GUNNER." Quail [Ortyx virginiana], Guns, etc. < *Rod and Gun*, vii, Feb. 26, 1876, p. 338.
Quail do at times withhold their scent; and certain bevies are marked by peculiar habits.

1876. "READER." Quails [Ortyx virginiana] Withholding Their Scent. < *Rod and Gun*, vii, Mar. 11, 1876, p. 371.
Bird retains odor upon its feet by covering them the instant it alights so closely that air cannot escape from beneath the feathers; certain bevies inherit this particularly; and the practice is specially observable in those bevies most assailed by hawks.

1876. "Bob White." Quail [Ortyx virginiana] Withholding Scent. < *Rod and Gun*, vii, Mar. 11, 1876, p. 371.

Facts showing its improbability.

1876. "Recapper." [T. C. Abbott.] Can quail [Ortyx virginiana] withhold their scent? < *Rod and Gun*, vii, Feb. 12, 1876, p. 312.

Believes it is possible, and voluntary, but a peculiarity of some bevies more than of others. This gave rise to much discussion, for which see pages 338, 339, 344, 370, 371, 386, 402, 406; *ibid.*, vii, pp. 2, 6, 9, 34, 67, 99, 134, and the general conclusion reached was, that no voluntary retention of scent was possible; but that the quiet or activity, state of mind and age of the bird—varying with different bevies—as well as atmospheric influences, affected the condition of the scent to such an extent as sometimes to almost wholly obliterate it.

1876. "Red-wing." [A. I. Huyler.] Quails [Ortyx virginiana] eat Skunk-cabbage [Symplocarpus fœtidus] seeds. < *Forest and Stream*, vi, Apr. 6, 1876, p. 133.

1876. Salvin, O. On two additional Species of Central-American Odontophorinæ. < *Ibis*, 3d ser., vi, July, 1876, pp. 379, 380.

Eupsychortyx leucotis, Gould, *P. Z. S.*, 1843, p. 133, and *Odontophorus cinctus*, sp. n., p. 379.

1876. "Spy." Can Quail [Ortyx virginiana] Withhold Their Scent. < *Rod and Gun*, vii, Feb. 26, 1876, p. 338.

Can withhold scent voluntarily, and do so when frightened. See p. 312.

1876. Taggart, D. Quail [Ortyx virginiana] Raising. < *Forest and Stream*, vii, Oct, 26, 1876, p. 179.

Reprinted from "Fanciers' Journal".

1876. [Tileston, W. M.] Quail [Ortyx virginiana] Shooting. < *Forest and Stream*. vii, Nov. 16, 1876, p. 232.

Habits of *Ortyx virginiana* from a sportsman's point of view.

1876. "Tonic." [?M. M. Benschoter.] Can Quail [Ortyx virginiana] Withhold their Scent? < *Rod and Gun*, vii, Mar. 11, 1876, p. 370.

Answers in the negative, and supposes atmospheric conditions and other circumstances to explain alleged retention.

1876. "T. Umbellus." Do quail [Ortyx virginiana, withhold their scent?] etc. < *Rod and Gun*, viii, May 27, 1876, p. 134.

1876. "Virginia," *and* Others. Can Quail [Ortyx virginiana] Withhold Their Scent? < *Rod and Gun*, vii, Mar. 18, 1876, p. 386.

"Virginia" denies that a dog's nose can be "so saturated with scent as that new birds are not perceived"; thinks odor of pine needles disguises birds' scent, but doubts whether it can be retained. "Rex" considers that adult birds can withhold scent, by compressing their feathers into an air-tight envelope of the body, through which no effluvium can pass from the body. "Ripple" denies the power, and argues the case circumstantially at length. "Northwest" considers that the birds that escape the dog would all be found after a few moments. "Dry Land" denies that they can withhold scent voluntarily, but that hiding and other circumstances account for the retention.

1876. "Wolverine." Powder, Quail and McLellan. < *Rod and Gun*, vii, Mar. 25, 1876, p. 406.

Remarks upon withholding of scent, and "reasoning powers" of *Ortyx virginiana*.

1876. Anon. [Editorial.] [Successful acclimatation of Ortyx virginiana in Nevada.] < *Rod and Gun*, vii, Mar. 25, 1876, p. 407.

1876. Youngs, J. E. A pet quail [Ortyx virginiana] in New York [for nine years]. < *Forest and Stream*, vii, Oct. 19, 1876, p. 164.

1876. "Yuba Dam". Quail [Ortyx virginiana] Withholding Scent. < *Rod and Gun*, Apr. 1, 1876, p. 2.

If they do appear to withhold scent, it is owing to atmospheric conditions and density of cover.

1877. Allin, E. Treatment of Quail [Ortyx virginiana] in Confinement. < *Forest and Stream*, viii, Feb. 15, 1877, p. 21.

1877. ANON. An Albino Quail [Ortyx virginiana]. < *Forest and Stream*, ix, Dec. 20, 1877, p. 381.

From "Bucks County Gazette".

1877. ANON. Migrations of Quails [Ortyx virginiana]. < *The Country*, i, Dec. 15, 1877, p. 91.

Letter condensed from "Scientific American" concerning inability of this species to fly across the Mississippi river near Natchez.

1877. ANON. Migratory Quails [Coturnix communis] for Vermont. < *Forest and Stream*, viii, June 28, 1877, p. 341.

Account from Rutland (Vt.) "Herald" of arrival of Quail from Sicily, to be acclimatized by the Hon. M. G. Everts; and remarks on breeding native Quail in this country from the Nashville (Tenn.) "Rural Sun."

1877. ———. Quail [Coturnix communis] at Sea. < *Forest and Stream*, ix, Nov. 22, 1877, p. 306. See pp. 327, 345.

Letters concerning their occurrence on Atlantic Coast.

1877. ———. Those Migratory quail [Coturnix communis]. < *Forest and Stream*, ix, Dec. 6, 1877, p. 345. See pp. 306, 327, 380, 397.

Letters from M. G. Everts, W. Hapgood, and "Staunch", with editorial remarks, concerning their colonization in Vermont.

1877. COUES, E. Quail [Coturnix communis] at Sea. < *Forest and Stream*, ix, Nov. 29, 1877, p. 327.

Information wanted concerning Quail mentioned on p. 306; distinctions between European and American "Quail."

1877. [COUES, E.] Birds. < *The Mirror* (Baltimore, Md.), Oct. 1, 1877, p. 10; Nov. 1, 1877, p. 5.

Notices of certain North American *Perdicidæ*, from his "Birds of the Northwest."

1877. HAPGOOD, W. Game birds of New England. European quail [Coturnix communis]. < *Forest and Stream*, ix, Aug. 9, 1877, p. 10.

1877. HARRINGTON, H. Can the Partridge [Ortyx virginiana] withhold his scent? < *Forest and Stream*, ix, Nov. 22, 1877, p. 306.

Affirmed, through power of bird to compress its plumage, which is non-conducting of scent.

1877. HOUGHTON, G. H. Breeding season for quail [Ortyx virginiana]. < *Forest and Stream*, viii, July 26, 1877, p. 421.

1877. LAWRENCE, G. N. Descriptions of New Species of Birds of the Families Trochilidæ and Tetraonidæ. < *Ann. N. Y. Acad. Sci.*, i, Dec., 1877, pp. 50–52.

The gallinaceous bird here described is *Cyrtonyx sumichrasti*, p. 51, Sta Efigenia, Tehuantepec.

1877. READY, J. A. Those Quail [Coturnix communis] Not All Gone to Sea. < *Forest and Stream*, ix, Dec. 27, 1877, p. 397.

1877. ROWLEY, G. D. Odontophorus cinctus (Salvin). < *Rowl. Orn. Misc.*, iii, pt. xi, Nov., 1877, pp. 39–41, pl. lxxxi.

Copy of the orig. descr., with colored fig. of the bird, and notes on habits by A. Boucard.

1877. [GRINNELL, M.] Save the Quail [Ortyx virginiana]. < *Forest and Stream*, vii, Jan. 18, 1877, p. 376.

While suffering from rigors of winter.

1877. VANDYKE, T. S. California Quail [Lophortyx californica] for the East. < *Rod and Gun*, ix, Mar. 17, 1877, p. 71. See also p. 401.

Habits of Quail of Pacific Coast, and qualities fitting them for successful introduction into the Eastern States.

1877. "VERDE MONTE." Migratory Quail [Coturnix communis]. < *Forest and Stream*, viii, Aug. 2, 1877, p. 447.

Details of M. G. Everts' successful introduction of them in Vermont.

1878. ANON. Inability of American Quail [Ortyx virginiana] to Fly Across Wide Rivers [doubted]. < *Forest and Stream*, x, Apr. 18, 1878, p. 196. See pp. 255, 319.

1878. Brown, F. C. Nesting of the Messina Quail [Coturnix communis, in Connecticut and Massachusetts.] < *Forest and Stream*, xi, Aug. 8, 1878, p. 2. See p. 56.

1878. "C. R." Flight of Quail over Water [and sagacity in escape]. < *Forest and Stream*, x, May 9, 1878, p. 255. See pp. 196, 319.

1878. "E." [Ortyx virginiana in Maine in December.] < *The Country*, i, Mar. 2, 1878, p. 261.

1878. [Editorial.] European quail [Coturnix communis] for [introduction into] America. < *The Country*, ii, June 22, 1878, p. 132.

1878. [Editorial.] More European quails [Coturnix communis, imported for naturalization]. < *The Country*, ii, July 6, 1878, p. 163.

1878. E[llzey], M. G. Inability of our Quail [Ortyx virginiana] to Make Long Flights. < *Forest and Stream*, x, May 30, 1878, p. 319. See pp. 196, 255.

1878. Everts, M. G. Successful breeding of the Messina quail (Coturnix communis) in New England. < *Forest and Stream*, xi, Aug. 22, 1878, p. 56. See p. 2.

1878. "Greenwood". Wintering quail. < *Forest and Stream*, x, Feb. 28, 1878, p. 55.

1878. Ingersoll, E. American Quails [Ortyx virginiana] for English Preserves. < *The* [London] *Field*, li, Feb. 9, 1878, p. 152.

Circumstantial history of the species, with remarks upon its adaptation to residence in England.

1878. "Kentuckian." [Successful] Domestication of Quail [Ortyx virginiana]. < *Forest and Stream*, xi, Oct. 3, 1878, p. 179.

1878. Mitchell, H. M. California mountain quail [Oreortyx picta, able to acclimatize in the Eastern States]. < *Forest and Stream*, ix, Jan. 3, 1878, p. 413.

1878. [Newby, J. B.] Early nesting of Quail [Ortyx virginiana, Jan. 20]. < *Forest and Stream*, x, Feb. 7, 1878, p. 3.

1878. "Ortyx." The migratory quail [Coturnix communis] at home. < *Forest and Stream*, x, June 20, 1878, p. 379.

1878. S[wainson], J. The Gray partridge (Perdix Cinerea) [suitable to introduce into U. S.] < *Forest and Stream*, x, May 2, 1878, p. 235. See p. 296.

1879. Anon. Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Jan. 1, 1879, p. 951.

1879. Anon. Migratory Quail [Coturnix communis]. < *Forest and Stream*, xii, Mar. 20, 1879, p. 126.

Encouraging report as to the success of the experiment of acclimatizing this species.

1879. Anon. The California Quail [Lophortyx californica]. < *Forest and Stream*, xiii, Dec. 11, 1879, p. 894.

Reprinted from San Francisco (Cal.) *Bulletin*.

1879. ———. The Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Aug. 14, 1879, p. 544.

Reports from Maine (J. Wight [Wright]) and Canada (J. D. Nevin) of the nesting of the recently imported "migratory quail"; with brief editorial introduction.

1879. ———. The Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Dec. 25, 1879, p. 927.

A composite article, consisting of five letters from correspondents, H. P. Tobey, Carl F. Brown, U. S. Consul at Messina, W. H. Williams, and "J. W. S." The information given is encouraging to those interested in the successful acclimatization of this species.

1879. Bacon, F. Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Oct. 16, 1879, p. 725.

Report of successful rearing of these birds in America from stock imported the previous spring.

1879. "Bobolink." [E. G. Rock.] Habits of the Migratory Quail [Coturnix communis.] < *Forest and Stream*, xi, Jan. 30, 1879, p. 522.

Compiled from different sources.

1879. Bohon, J. T. Domestication of Quail [Ortyx virginiana]. < *Forest and Stream*, xii, May 8, 1879, p. 266.

Short account of raising of them with common fowls until they had attained their full size.

1879. Editor, *and* Others. Importation of Game Birds [Coturnix communis]. < *Forest and Stream*, xii, June 19, 1879, p. 390.

A made-up article, consisting of reports from various quarters of the success attending the importation of the migratory Quail, with editorial introduction. The reports come from Maine (James Wright), New Hampshire ("Mont Clare"), Massachusetts (Horace P. Tobey), New York (Arnold Stub, M. D., and C. H. Bitting), and Pennsylvania (H. Holdane, "Jot", and Byron Cracroft). In all cases the birds arrived in good order and promised to do well.

1879. Editor. To Breed Quail [Ortyx virginiana]. < *Forest and Stream*, xiii, Aug. 7, 1879, p. 525.

1879. Editor. Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Aug. 28, 1879, p. 585.

Proposed prohibition of netting these birds in Messina.

1879. Englert, M., *and* Roussel, A. C. [Breeding of Ortyx virginiana in confinement.] < *Forest and Stream*, xii, Feb. 6, 1879, p. 6.

1879. Henry, S. H. Migratory Quail [Coturnix communis] in New Jersey. < *Forest and Stream*, xii, June 26, 1879, p. 412.

1879. Linden, C., [*and* Editor.] New Protection for Quail [Ortyx virginiana]. < *Forest and Stream*, xii, Feb. 13, 1879, p. 31.

Proposed plan for protecting this species, with editorial comments.

1879. "Miles". Domestication of Quail [Ortyx virginiana]. < *Forest and Stream*, xiii, Aug. 7, 1879, p. 525.

1879. [Reynolds, C. B.] The Migratory Quail [Coturnix communis]. < *Forest and Stream*, xii, June 26, 1879, p. 412.

Brief remarks on the habits of the bird, to introduce woodcut taken from *Morris' British Birds.*

1879. R[hodes], W., *and* Tobey, H. P. Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Dec. 11, 1879, p. 891.

A query by W. R., and an answer by Mr. Tobey, giving some information as to the game qualities of these birds.

1879. Samuels, E. A. The Virginia Partridge, or Common Quail. Ortyx virginianus —Bonaparte. < *Town and Country, People's Monthly Journal* (Boston, Mass.), i, No. 3, Mar., 1879.

Extended popular account of habits.

1879. Tobey, H. P., *and* Brown, C. F. Importation of Migratory Quail [Coturnix communis]. < *Forest and Stream*, xii, Feb. 20, 1879, p. 52.

Letter from Mr. Tobey inclosing one from C. F. Brown, U. S. consul at Messina, giving directions for obtaining these birds for importation to America.

1879. Tobey, H. P. Importation of Migratory Quail [Coturnix communis]. < *Forest and Stream*, xii, Mar. 13, 1879, p. 120.

Letter giving information in regard to importing these birds.

1879. Tobey, H. P. Cost of Importing Migratory Quail [Coturnix communis]. < *Forest and Stream*, xii, Mar. 20, 1879, p. 126.

1879. Vibert, P. Importation of European Partridge. < *Forest and Stream*, xii, June 26, 1879, p. 412.

Advocating it.

1879. West, Mark (? *pseudonym*). Migratory Quail [Coturnix communis]. < *Forest and Stream*, xiii, Aug. 28, 1879, p. 585.

Observed near New Haven, Conn.

1879. Woodman, M. S. Migratory Quail [Coturnix communis] in New Hampshire. < *Forest and Stream*, xii, June 26, 1879, p. 412.

Report of the progress of their acclimatation in that State.

Charadriidæ.

1774. Ascanius, P. Beskrivelse over en Norsk Sneppe [Charadrius sp.] et söedyr < *Trondhjemske Vid. Selsk. Skr.*, v, 1774, p. 153.

Not seen: title from Carus and Engelmann.

1807. Geoffroy St.-Hilaire, [É.] Observations sur les habitudes attribuées par Hérodote aux Crocodiles du Nil. < *Ann. du Mus. d'Hist. Nat.*, ix, 1807, pp. 373–387.

Sur le *Trochilus* des anciens, *Charadrius ægyptius*, Hasselq., pp. 382–384.

1814. Nilsson, S. Analecta Ornithologica. Pars II. Charadrios Sveciæ sistens. Præs. Sv. Nilsson, Resp. J. M. Roselius, Gothob. Lundæ. 1814. 4ot. pp. 31–42.

Haud mihi obvia.—Pars I, vide sub Motacillidis, hujusce bibliographiæ.

1825. Kaup, J. J. Beyträge zur Ornithologie. < *Oken's Isis*, Jahrg. ix, 1825, pp. 1395, 1396 [i. e., 1375, 1376], pl. xiv.

Ueber die Gattungen *Charadrius* und *Vanellus*. *C. semipalmatus*, p. "1396" (*i. e.*, 1376), Taf. xiv (Kopf und Fuss).

1826. S[trau]s, —. Matériaux pour l'Ornithologie; par M. Kaup. . . . < *Féruss. Bull.*, 2e sect., viii, 1826, pp. 276, 277.

Extrait de l'*Isis*, 1825, p. "1395" = 1375, pl. 14; sur les genres *Charadrius* et *Vanellus*.

1827. Geoffroy St.-Hilaire, [É.] Mémoire sur deux espèces d'aminaux nommés Trochilus et Bdella par Hérodote, leur guerre, et la part qu'y prend le Crocodile. < *Mém. du Mus. d'Hist. Nat.*, xv, 1827, pp. 459–474.

Examen du texte d'Hérodote à leur sujet—Confirmation des faits observés par cet historien—Sur le *Trochilus* (Pluvier des modernes)—Examen des services rendus par le *Trochilus* au Crocodile, analogue à ceux du Todier au même reptile à St.-Domingue—Considérations sur les services réciproques que se rendent les animaux et inductions relatives aux phenomènes de l'instinct.

1828. Geoffroy St.-Hilaire, [É.] Ueber den Zustand der Naturgeschichte bey den (alten und neuern) Aegyptiern, vorzüglich hinsichtlich des Crocodills. < *Oken's Isis*, Bd. xxi, 1828, pp. 1076–1086.

Uebers. *Rev. Encyc.*, mai 1828.—P. 1083, „Was solte man vom *Trochilus* denken?"—*Charadrius ægyptius* Hasselq.

1828. Geoffroy St.-Hilaire, [É.] An account of the services which the little bird called Trochilos [Ægialitis ægyptius (Hasselq.)] renders to the Crocodile. < *Edinb. Journ. Sci.*, ix, 1828, pp. 68–72.

1829. Hawkins, T. A Species of Plover < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 207.

1829. "J. B." Food of the Lapwing [Vanellus cristatus]. < *Loudon's Mag. Nat. Hist.*, ii, 1829, pp. 113, 114.

1829. "M." Food of the Lapwing [Vanellus cristatus]. < *Loudon's Mag. Nat. Hist.*, i, 1829, p. 496.

1832. Clayton, G. The Kentish Plover not a variety of the Ring Plover, or Dulwilly, as it is asserted to be in Rennie's Montagu's Ornithological Dictionary. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 80, 81.

1833. "T. K." A remarkable Variety of the Peewit [Vanellus cristatus]. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 519.

1834. Gould, J. [Characters of a New Species of Plover (Vanellus albiceps) collected by Lieut. Allen in Western Africa.] < *P. Z. S.*, ii, 1834, p. 45.

1835. [Gould, J.] [Ueber Vanellus albiceps.] < *Oken's Isis*, Bd. xxviii, 1835, p. 1029.

From *P. Z. S.*, 1834, p. 45.

1835. DOUBLEDAY, H. [Charàdrius minor has been taken in Britain; Grounds of Proof of the Correctness of Identifying the Birds so deemed as it.] < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 615–617.

1835. STRICKLAND, A. [Charàdrius minor; the Accuracy of deeming it a Bird of Britain questioned, with Reasons.] < *Loudon's Mag. Nat. Hist.*, viii, 1835, p. 510.

1836. YARRELL, W. [Breeding of Charadrius morinellus at Skiddaw, England.] < *P. Z. S.*, iv, 1836, pp. 1, 2.

1837. L'HERMINIER, F. Edicnème. Ædicnemus, Temminck. E. Vocifer. Æ. vocifer. L'Herminier. < *Guér. Mag. de Zool.*, 7e année, 1837, classe ii, notice lxxxiv, pp. 1–6, pl. lxxxiv.

1838. HEYSHAM, T. C. Some Observations on the Habits of the Dottrel, (Charadrius [Eudromias] Morinellus, Linn.) made in Cumberland, during the Summer of 1835. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 295–304.

1839. [GOULD, J.] Erythrogonys [cinctus, sp. n.] Gould. Neue Gattung der Wadvögel. < *Arch. f. Naturg.*, 1839, (1), p. 397.

From *P. Z. S.*, 1837, p. 155, where it occurs as part of a paper describing many new Australian birds.

1843. HEWETT, W. Note on the Golden Plover [Charadrius pulvialis]. < *Zoologist*, i, 1843, pp. 362, 363.

On its breeding and other habits.

1843. HEWETT, W. Note on the Eggs of the Stone Curlew [Œdicnemus crepitans]. < *Zoologist*, i, 1843, p. 363.

1843. HEWETT, W. Note on the habits of the Dottrell [Eudromias morinellus]. < *Zoologist*, i, 1843, p. 363.

1843. RODD, E. H. Note on the early breeding of the Ring Plover [Ægialitis hiaticula, in the Scilly Islands]. < *Zoologist*, i, 1843, p. 190.

1844. FRASER, L. [On Birds from Chile, and description of Leptopus mitchellii, g. sp. n.] < *P. Z. S.*, xii, 1844, p. 157.

The genus *Leptodactylus* is proposed in event that *Leptopus* is preoccupied.

1844. HURRY, W. C. Ueber Herodots Trochilus und Crocodil. < *Oken's Isis*, Bd. xxxvii, 1844, p. 889.

Edinb. New Philos. Journ., xxix, 1840, p. 197.

1845. POOLE, J. Occurrence of the Norfolk Plover [Œdicnemus crepitans] in Co. Wexford. < *Zoologist*, iii, 1845, p. 876.

1845. RODD, E. H. Norfolk Plover [Œdicnemus crepitans] wintering in Cornwall. < *Zoologist*, iii, 1845, p. 876.

1846. CHENNELL, F. A. Incubation of the Ringed Plover (Ægialitis hiaticula). < *Zoologist*, iv, 1846, p. 1212.

1847. HUGHES, E. J. R. Enquiry respecting the rearing of a Lapwing [Vanellus cristatus]. < *Zoologist*, v, 1847, p. 1872.

1848. CLIBBORN, J. Enquiry respecting the Migration of Plovers (Charadrius pluvialis and cinereus). < *Zoologist*, vi, 1848, p. 2023.

1848. FISHER, W. R. Migration of Plovers [in England]. < *Zoologist*, vi, 1848, p. 2066.

1848. GOATLEY, T. Note on the Great Plover (Œdicnemus crepitans). < *Zoologist*, vi, 1848, p. 2147.

1848. GOATLEY, T. Migration of the Golden Plover (Charadrius pluvialis). < *Zoologist*, vi, 1848, p. 2147.

1848. MORRIS, B. R. Note on the Great Plover (Œdicnemus crepitans). < *Zoologist*, vi, 1848, pp. 2146, 2147.

1848. RODD, E. H. Great Plover (Œdicnemus crepitans) wintering in Cornwall. < *Zoologist*, vi, 1848, p. 2023.

1848. Poole, J. Peewit (Vanellus cristatus) destructive to the Wireworm. <*Zoologist*, vi, 1848, p. 2023.

1850. Foster, T. W. Occurrence of the Dotterel Plover (Charadrius [Eudromias] morinellus) at and near Wisbech. <*Zoologist*, viii, 1850, p. 2853.

1850. Garth, J. C. Occurrence of the Little Ringed Plover (Charadrius minor [Ægialitis curonica]) near Whixley. <*Zoologist*, viii, 1850, p. 2953.

1850. Strickland, H. E. On the occurrence of Charadrius virginiacus, Borkh., at Malta. <*Ann. Mag. Nat. Hist.*, 2d ser., v, 1850, pp. 40–42.

1851. Ellman, J. B. Occurrence of the Little Ringed Plover [Ægialitis curonica] at Shoreham, Sussex. <*Zoologist*, ix, 1851, p. 3279.

1851. Jäger, —. Beobachtung über den Gold-Regenpfeiffer. (Charadrius auratus Suk.) <*Württemb. Naturw. Jahreshefte*, vii, Jahrg. 1851, p. 264.

Nicht mir selbst zugänglich: Titel aus Carus und Engelmann.

1852. Pässler, W. [Aus der Leben von Charadrius minor (Ægialitis curonica).] <*Naumannia*, ii, Heft i, 1852, pp. 95, 96.

1852. Powys, T. L. Occurrence of the Ring Dotterel (Charadrius [Ægialitis] Hiaticula) near Oxford. <*Zoologist*, x, 1852, p. 3476.

1852. Rodd, E. H. Occurrence of the Kentish Plover [Ægialitis cantiana] near Penzance. <*Zoologist*, x, 1852, p. 3453.

1853. Garland, J. Occurrence of the Dotterel (Charadrius [Eudromias] Morinellus) near Dorchester. <*Zoologist*, xi, 1853, p. 4053.

1853. Gurney, J. H. Note on the occurrence in Sweden of Pluvianus Ægyptius. <*Zoologist*, xi, 1853, p. 4096.

1853. Irby, L. H. Occurrence of the Stone Curlew (Œdicnemus crepitans) near Thetford. <*Zoologist*, xi, 1853, p. 3909.

1854. Warren, —. [Exhibition of Charadrius minor (Ægialitis curonica) from Clontarf Island.] <*Nat. Hist. Rev.* (*Proc. Soc.*), i, 1856, p. 34.

1855. Hartlaub, G. Ueber Chettusia crassirostris de Filippi. <*J. f. O.*, iii, 1855, p. 427.

1855. Lübbert, —. [Ein ungefähr acht Tage alter Œdicnemus crepitans.] <*Naumannia*, 1855, p. 109.

1858. Gurney, J. H. Note on a Lapwing's [Vanellus cristatus] Egg with Two Yolks. <*Zoologist*, xvi, 1858, p. 6144.

1858. Rodd, E. H. Occurrence of the Great Plover [Œdicnemus crepitans] at Penzance. <*Zoologist*, xvi, 1858, p. 6009.

1858. Rodd, E. H. Occurrence of the Kentish Plover [Ægialitis cantiana] near Penzance. <*Zoologist*, xvi, 1858, p. 6097.

1860. Gloger, C. W. L. Der Alpen-Regenpfeifer (Charadrius [Eudromias] morinellus) auf dem Riesengebirge wieder vorhanden. <*J. f. O.*, viii, 1860, p. 159.

1862. Crewe, H. H. [Letters on the occurrence of Charadrius (Eudromias) morinellus at Tringhoe, England.] <*Ibis*, iv, 1862, pp. 390, 391.

1862. Saville, S. P. Occurrence of the Norfolk Plover [Œdicnemus crepitans] in Cambridgeshire, with a few Remarks upon its Habits. <*Zoologist*, xx, 1862, pp. 8168, 8169.

1862. Sclater, P. L. Notice of the supposed occurrence of the American Kill-deer Plover (Ægialites vociferus) in Great Britain. <*Ibis*, iv, 1862, pp. 275–277.

River Avon, in Apr., 1857. Table of 11 out of 38 North American *Grallæ* which have been found in Europe.

1863. Saxby, H. L. Colour of the Eggs of the Golden Plover [Charadrius pluvialis]. <*Zoologist*, xxi, 1863, p. 8725

1864. Boulton, W. W. Great Plover or Stone Curlew [Œdicnemus crepitans] near Beverley. < *Zoologist,* xxii, 1864, pp. 9282, 9283.

1864. Coinde, J. L. Note pour servir à l'histoire des Oiseaux insectivores. < *Rev. Zool.,* 1864, pp. 5, 6.

On the diet of a bird belonging "à la famille des échassiers riverains du genre chevalier." Not seen; title from *Zool. Rec.*

1864. Cordeaux, J. Gray Plover [Squatarola helvetica] on the Lincolnshire Coast. < *Zoologist,* xxii, 1864, p. 9115.

1864. Harting, J. E. The little Ringed Plover [Ægialitis curonica] at Kingsbury, Middlesex. < *Zoologist,* xxii, 1864, pp. 9283–9285.

1864. Norman, G. Eggs of the Thickknee Plover [Œdicnemus crepitans]. < *Zoologist,* xxii, 1864, p. 9114.

1864. Schwaitzer, F. Charadrius [Eudromias] morinellus in der Provinz Posen. < *J. f. O.,* xii, 1864, p. 314.

1865. Schlegel, H. Cursores. < *Mus. Nat. Hist. Pays-Bas,* 17e livr., Mars 1865, pp. 1–80.

The "Cursores" of this author consist of four very distinct families, the *Otididæ, Glareolidæ, Charadriidæ,* and *Hæmatopodidæ.*

Of *Otididæ* are described 18 spp., all referred to the single genus *Otis.*

Of *Glareola* are treated 5 spp., and of *Cursorius* 7 spp.

Strepsilas with 3 spp. and *Hæmatopus* with 6 spp.

The greater part of the memoir is of course devoted to the charadrian group, of which are described 7 spp. of *Œdicnemus,* 21 of *Charadrius,* 4 of *Morinellus,* 3 of *Pluvialis,* 13 of *Vannellus,* and 9 of *Lobivanellus.*

The whole group is represented by a total of 750 specimens in the Leyden Museum.

1866. Brehm, A. E. Zur Naturgeschichte des weisschwänzigen Kiebitzes, (Chaetusia [sic] leucura). *J. f. O.,* xiv, 1866, pp. 386–388.

1866. Monk, T. J. Little Ringed Plover [Ægialitis curonica] near Lewes. < *Zoologist,* 2d ser., i, 1866, p. 229.

1866. Rodd, E. H. Occurrence of the Stone Curlew or Great Plover [Œdicnemus crepitans] at the Land's End. < *Zoologist,* 2d ser., i, 1866, pp. 34, 35.

1866. Shorto, J., Jr. Stone Curlew [Œdicnemus crepitans] near Dorchester. < *Zoologist,* 2d ser., i, 1866, p. 389.

1867. Herklotz, O. Oedicnemus crepitans. < *Verh. (Abh.) k.-k. zool.-bot. Ges. Wien,* xvii, 1867, pp. 619–622.

Lebensweise.

1867. Shorto, J., Jr. Golden and Green Plovers (see Zool. S. S. 690). < *Zoologist,* 2d ser., ii, 1867, p. 759.

1867. Stubbs, C. E. Lapwings [Vanellus cristatus] at Henley-on-Thames. < *Zoologist,* 2d ser., ii, 1867, p. 829.

1868. Blake-Knox, H. Thickkneed Plover [Œdicnemus crepitans] in the County of Dublin. < *Zoologist,* 2d ser., iii, 1868, p. 1134.

1868. Rodd, E. H. Occurrence of the Common Dotterel [Eudromias morinellus] at the Lizard. < *Zoologist,* 2d ser., iii, 1868, p. 1423.

1869. Cordeaux, J. On the Variation in Colour of the Axillary Plume of the Golden Plover [Charadrius pluvialis]. < *Zoologist,* 2d ser., iv, 1869, pp. 1601, 1602.

1869. Harting, J. E. [Exhibition of a skin of Anarhynchus frontalis.] < *P. Z. S.,* xxxvii, 1869, p. 360.

1869. Harting, J. E. On rare or little-known Limicolæ. [Part I.] < *Ibis,* 2d ser., v, 1869, pp. 304–310, fig., and pl. viii.

This, the first instalment of a series of articles with above caption, without subhead, treats monographically of *Anarhynchus frontalis.*

1869–73. Harting, J. E. On rare or little-known Limicolæ. [Parts I–V.] < *Ibis*, 2d ser., v, 1869, pp. 304–310, fig. and pl. viii, 426–434, figg. and pl. xii; 2d ser., vi, 1870, pp. 201–213, pll. v, vi, 378–392; 3d ser., iii, 1873, pp. 260–269, pll. viii, ix.

An important series of papers, very full, and making many rectifications of synonymy and other criticisms. They are divisible into parts, each one of which will be found entered in this Bibliography under head of the family to which the birds treated in the successive instalments respectively belong.—1869, pp. 304–310, treats of *Anarhynchus frontalis* (pl. 8); 1869, pp. 426–434, of *Eurynorhynchus pygmæus* (pl. 12); 1870, pp. 201–213, of *Eudromias asiaticus* (pl. 5), *E. veredus* (pl. 6); 1870, pp. 378–392, of *Ægialitis geoffroyi*, *Æ. mongolicus*; 1873, pp. 260–269, *Ægialitis varius* (pl. 8), *Æ. sanctæ helenæ*, n. sp., p. 266 (pl. 9) =*pecuarius* ex St. Helenâ auct. Thus all five papers, excepting the second, treat of *Charadriidae*.

1869. Hartlaub, G. On Anarhynchus [frontalis]. < *P. Z. S.*, xxxvii, 1869, pp. 433–436.

History and characters of the genus; synonymy and description of the species.

1869. Horne, C. [On the habits of Lobivanellus goensis.] < *Ibis*, 2d ser., v, 1869, pp. 454–456.

1869. Jardine, W. [Note on the bill of Anarhynchus frontalis.] < *Ibis*, 2d ser., v, 1869, pp. 461, 462.

1869. Mathew, M. A. Dotterel [Eudromias morinellus] near Weston. < *Zoologist*, 2d ser., iv, 1869, p. 1802.

1870. Gurney, J. H., Jr. Gray Plover [Squatarola helvetica] at Blakeney. < *Zoologist*, 2d ser., v, 1870, p. 2384.

1870. Mosley, O. Golden Plover [Charadrius pluvialis] on the Dove. < *Zoologist*, 2d ser., v, 1870, p. 1981.

1870. Newton, A. [Exhibition of a Chick of Anarhynchus frontalis.] < *P. Z. S.*, xxxviii, 1870, pp. 673, 674, woodc.

1870. Harting, J. E. On rare or little-known Limicolæ. [Part III.] < *Ibis*, 2d ser., vi, 1870, pp. 201–213, pll. v, vi.

The third instalment of the series, continued from *op. cit.*, v, 1869, p. 434. It treats of *Eudromias asiaticus* (pl. v), and *E. veredus* (pl. vi).

1870. Harting, J. E. On rare or little-known Limicolæ. [Part IV.] < *Ibis*, 2d ser., vi, 1870, pp. 378–392.

The fourth instalment of the series, continued from *tom. cit.*, p. 213. It treats of *Ægialitis geoffroyi* and *Æ. mongolica.*

1870. Swinhoe, R. On the Plovers of the Genus Ægialites found in China. < *P. Z. S.*, xxxviii, 1870, pp. 136–142, pl. xii.

8 spp. *Æ. hartingi*, p. 136, pl. xii; *Æ. dealbatus*, p. 138, spp. nn.

1871. Harvie-Brown, J. A. Ringed Plover [Ægialitis hiaticula] breeding Inland. < *Zoologist*, 2d ser., vi, 1871, p. 2851.

1871. Chalk, W. J. Large Flock of Golden Plover [Charadrius pluvialis] at Bedford. < *Zoologist*, 2d ser., vi, 1871, p. 2806.

1871. Edwardes, L. Ringed Plover [Ægialitis hiaticula] breeding at a distance from the Coast. < *Zoologist*, 2d ser., vi, 1871, p. 2770.

1871. Gurney, J. H., Jr. Dotterel [Charadrius morinellus] at Dungeness. < *Zoologist*, 2d ser., vi, 1871, p. 2851.

1871. Harting, J. E. Ringed Plover [Ægialitis hiaticula] breeding at a distance from the Coast. < *Zoologist*, 2d ser., vi, 1871, p. 2807.

1871. Mitford, R. Ring Dotterel breeding Inland. < *Zoologist*, 2d ser., vi, 1871, p. 2851.

1871. Power, F. D. Dotterels [Eudromias morinellus] in Somersetshire. < *Zoologist*, 2d ser., vi, 1871, p. 2441.

1871. Ogden, J. A. Synopsis of the Genus Chettusia (Lobivanellus), with a Description of a New Species. < *Proc. Acad. Nat. Sci. Phila.*, 1871, pp. 194–196, pl. i.

A short, imperfect sketch, including 16 species, one being *C. nivifrons*, sp. n., from Fazoglou, p. 196. See especially Finsch, *op. cit.*, 1872, p. 32.

1871. RODD, E. H. Kentish Plover [Ægialitis cantiana] near Penzance. < *Zoologist*, 2d ser., vi, 1871, p. 2806.

1872. ANGUS, W. C. Ringed Plover [Ægialitis hiaticula] breeding at a distance from the Coast. < *Zoologist*, 2d ser., vii, 1872, pp. 2905, 2906.

1872. FINSCH, O. On Charadrius asiaticus and Ch. damarensis. < *Ibis*, 3d ser., ii, 1872, pp. 144–147.

Synonymatic and critical. The determinations differ from those of J. E. Harting, *op. cit.*, 1870, p. 206, *q. v.*

1872. FINSCH, O. Remarks on the "Synopsis of the genus Chettusia (Lobivanellus), with a description of a new Species by J. A. Ogden." < *Proc. Acad. Nat. Sci. Phila.*, xxiv, 1872, p. 32.

Chettusia nivifrons Ogd. = *C.* [*Limnetes*] *crassirostris;* and other rectifications, with addition of 8 species of the genus to those given by Ogden, *op. cit.*, 1871, pp. 194–196, *q. v.*

1873. CABANIS, J. [Chettusia leucura bei Sarepta erlegt.] < *J. f. O.*, 1873, p. 80.

1873. DURNFORD, H. Remarkable Posture of the Norfolk Plover [Œdicnemus crepitans]. < *Zoologist*, 2d ser., viii, 1873, p. 3693.

1873. HARTING, J. E. [Eudromias tenuirostris Hume = Ægialitis hartingi Swinh. = Charadrius placidus Gray.] < *Ibis*, 3d ser., iii, 1873, pp. 324–327.

1873. HARTING, J. E. On rare or little-known Limicolæ. [Part V.] < *Ibis*, 3d ser., iii, 1873, pp. 260–269, pll. viii, ix.

The fifth and concluding instalment of the series, continued from *op. cit.*, 2d ser., vi, p. 392. It treats of *Ægialitis varias* (pl. viii), and of *Æ. sanctæ-helenæ*, n. sp., p. 266, pl. ix The latter is *pecuarius* auct. ex St. Helenâ.

1874. HARTING, J. E. On the Lapwing of Chili [Vanellus occidentalis, p. 451, sp. n.]. < *P. Z. S.*, lxii, 1874, pp. 449–452.

1874. HARTING, J. E. On the Eggs of some little-known Limicolæ. < *P. Z. S.*, xlii, 1874, pp. 454–460, pl. lx.

23 spp., of which the following are figured: fig. 1, *Glareola lactea;* 2, *Pluvianus ægyptius;* 3, *Hoplopterus ventralis;* 4, *Ægialitis pecuarius;* 5, *Æ. tricollaris;* 6, *Æ. falklandicus;* 7, *Æ. collaris;* 8, *Æ. ruficapillus;* 9, *Æ. nigrifrons;* 10, *Himantopus novæ-zelandiæ;* 11, *Anarhynchus frontalis.*

1875. DRESSER, H. E. [Occurrence of Charadrius fulvus (verus) in Great Britain.] < *Ibis*, 3d ser., v, 1875, pp. 513, 514.

1875. DRESSER, H. E. Notes on the Nest and Egg of Hypolais caligata and on the Egg of Charadrius asiaticus, Pall., together with Remarks on the latter Species and Charadrius veredus, Gould. < *P. Z. S.*, Feb. 16, 1875, pp. 97, 98.

The distinction of these two species of *Charadrius* maintained.

1875. HARVIE-BROWN, J. A. [On the Eggs of Anarhynchus frontalis described in P. Z. S., 1874, 454.] < *Ibis*, 3d ser., v, 1875, p. 519.

1876. BOYES, F. Stone Curlew [Œdicnemus crepitans]. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4882.

1876. GURNEY, J. H., JR. Stone Curlew [Œdicnemus crepitans]. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4801.

1876. GURNEY, J. H., JR. The Eye of the Little Ringed Plover [Ægialitis curonica]. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4801.

1876. RODD, E. H. Common Dotterel [Eudromias morinellus] near Penzance. < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5125.

1876. WHEEEER, F. White Peewit [Vanellus cristatus]. < *Zoologist*, 2d ser., xi, May, 1876, p. 4928.

1877. GARROD, A. H. Notes on the Anatomy and Systematic Position of the Genera Thinocorus and Attagis. < *P. Z. S.*, May 1, 1877, pp. 413–418, figg.

Nearest related to *Cursorius* and *Glareola*.

This does not come strictly under head of *Charadriidæ;* but I wish it to appear here.

1877. Howell, M. A. The American golden plover [Charadrius fulvus virginicus.] < *Forest and Stream*, viii, Mar. 1, 1877, p. 49.

Habits of the species.

1878. Eagle, C. H. Capture of Ægialitis meloda var. circumcincta, Ridg., on Long Island. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 94.

1878. Garrod, A. H. On the trachea of Tantalus loculator and of Vanellus cayennensis. < *P. Z. S.*, May 21, 1878, pp. 625–629, figg. 1, 2.

The parts named of each of these species are figured on the woodcuts in text.

1879. Dutcher, W. Wilson's Plover [Ægialitis wilsonia] on Long Island, N. Y. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 242.

Chionididæ.

1836. Blainville, M. H. D. de. Sur la place que doit occuper dans le système ornithologique le genre Chionis ou Bec-en-fourreau. < *Comptes Rend. de l'Acad. Sci.*, iii, 1836, pp. 155–164.

Pas vu moi-même.

1836. Blainville, M. H. D. de. Mémoire sur la place que doit occuper dans le système ornithologique le genre Chionis ou Bec-en-fourreau. < *Ann. des Sci. Nat.*, 2e sér., vi, 1836, pp. 97–106.

This I have seen, and in fact have closely studied; but the title is taken at second-hand, and may not be literally correct.

Various previous writers upon the subject had either passed over the systematic position of *Chionis* as not determined, or, in attempting its determination, had in turn considered the bird as grallatorial, natatorial, and gallinaceous, and had placed it in one or another of the recognized families, or had made of it a distinct family. The present author, writing at a time when only three specimens of *Chionis alba* were known to him to have existed, describes briefly the external parts of this species, and in more detail the osteology, the material for the study of the latter being an incomplete skeleton obtained through M. Baillon from M. P. E. Botta, who also contributed some details of the visceral anatomy. Relying chiefly upon the characters of the sternum in classification, M. De Blainville made the bird out to be an échassier, closely related to *Hœmatopus*. The reasons for his conclusions are stated categorically in thirteen propositions on p. 106. The position here taken is defended with learning and ingenuity, and has been until recently very generally accepted without question.—Cf. *Bull. U. S. Nat. Mus.*, No. 3, 1876, pp. 86–88.

1841. Hartlaub, G. Nouvelle espèce de Bec en fourreau (Chionis [minor]). < *Revue Zoologique*, iv, 1841, pp. 5, 6; v, 1842, pl. 2, figg. 2, 2a, 2b.

Cette espèce est devenue plus tard le type du genre nouveau *Chionarchus* de MM. Kidder et Coues, *Bull. U. S. Nat. Mus.*, nº. 3, 1876, p. 116, *q. v.* Elle a été figurée par M. G. R. Gray, *Gen. Birds.*

1858. Eyton, T. C. Note on the Skeleton of the Sheath-bill (Chionis alba). < *P. Z. S.*, xxvi, 1858, pp. 99, 100.

Inclines to place it with *Glareola*.

1858. Eyton, T. C. Note on the Skeleton of the Sheath-bill (Chionis alba). < *Ann. Mag. Nat. Hist.*, 3d ser., ii, 1858, p. 67.

From *P. Z. S.*, Feb. 23, 1858, pp. 99, 100.

1869. Cunningham, R. O. On Chionis alba. < *Journ. Anat. and Physiol.*, Nov., 1869, pp. 87–89, pl. vii.

A brief description, illustrated by figures, of the principal digestive organs, and larynx.

1870. Cunningham, R. O. On Chiaris [sic] alba. < *Rep. Brit. Assoc. Adv. Sci. for 1869*, 1870, (*Misc. Comm.*), p. 111.

Anatomical notes on *Chionis alba*.

1867. Sclater, P. L. [Exhibition of a skin of Chionis minor.] < *P. Z. S.*, xxxv, 1867, p. 891.

From the Crozet Islands, being that mentioned by E. L. Layard in *Ibis*, 1867, p. 458.

1871. Newton, A. [Egg of Chionis minor figured.] < *P. Z. S.*, Jan. 17, 1871, p. 57, pl. iv, f. 7.

Not properly citable as a separate article: the notice occurs in a paper entitled, "On some New or Rare Birds' Eggs", running pp. 55–58, pl. iv, figg. 1–8 of the periodical in mention.

1876. Kidder, J. H. An interesting Bird [Chionis minor]. < *Popular Science Monthly*, viii, No. 48, Apr., 1876, pp. 657–665, figs. 1–3.

Popular account of the history, characters, and habits of this species.

1876. [Kidder, J. H.] The Natural History of Kerguelen Island. < *Am. Nat.*, x, No. 8, 1876, pp. 481–484.

Editorial, prepared from Dr. Kidder's paper. *Chionis minor* the only bird treated.

1876. KIDDER, J. H., *and* COUES, E. A study of Chionis minor with reference to its Structure and Systematic Position. < *Bull. U. S. Nat. Mus.*, No. 3, 1876, pp. 85–116.

After De Blainville's original memoir of 1836 on the anatomy and taxonomy of *C. alba*, this article is the principal authority on the structure and systematic position of the family *Chionididæ*. The species studied is *C. minor*, not only fully endorsed as to its specific validity, but raised to the rank of a separate genus (*Chionarchus*, g. n., p. 116). The taxonomic value of the family is also raised to equivalency with the major groups indicated by Huxley by the termination *-morphæ*, under the style of *Chionomorphæ* (p. 115).

The article opens with a review of the literature of the whole subject, from Forster's founding of the genus *Chionis* in 1788, to date, De Blainville's paper being specially noted (pp. 85–90). The description of *C. minor* follows (pp. 91, 92); the anatomy of the same species continues (pp. 92–107) with an account of the principal muscles and viscera, and a description of the whole skeleton. A "Statement of Conclusions deduced from the foregoing" concludes the paper. De Blainville's views of the near relationship of *Chionis* to *Hæmatopus* are criticized and dissented from. "In summing external characters, therefore, we see how exactly *Chionis* stands between grallatorial and natatorial birds, retaining slight but perfectly distinct traces of several other types of structure" (p. 109). "We thus find in *Chionis* a connecting link, closing the narrow gap between the plovers and gulls of the present day. In our opinion, this group represents the survivors of an ancestral type from which both gulls and plovers have descended. And this opinion is strongly supported by the geographical isolation of its habitat, affording but few conditions favorable to variation" (p. 114). *Chionis* being consequently not referable to either of the two superfamily groups between which it stands, the group *Chionomorphæ* is established for its reception, and defined—the Chionomorphs "constituting exactly the heretofore unrecognized link between the Charadriomorphs and Cecomorphs, nearer the latter than the former, and still nearer the common ancestral stock of both." Of the two recognized species, *C. minor* is decided to be "undoubtedly nearest to the ancestral type," and is therefore named *Chionarchus minor*.

Other observations on *Chionis minor*, by Dr. Kidder, are found *ibid.*, p. 7; and in *op. cit.*, No. 2, 1875, pp. 1——; but these are not separate articles. I am under the impression that one or more special papers on *Chionis* appeared after 1876; but if so, I have not indexed the periodicals in which they are contained.

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1783. OTTO, B. C. Der Steindreher [Tringa (Strepsilas) interpres]. < *Abhandl. Naturf. Gesell. Halle*, i, 1783, pp. 111–120.
Nicht mir selbst zugänglich: Titel aus Carus und Engelmann.

1826. [BOIE, F.] On the Plumage of the Oyster Catcher [Hæmatopus ostralegus]. < *Thomson's Ann. Philos.*, new ser., xi, 1826, pp. 71, 72.
Editorial note of Boie's observations.

1833. EVANS, J. A puzzling Specimen of the Oyster-catcher (Hæmatopus ostralegus L.). < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 152, 153.
From *Hereford Journal*, Dec. 5, 1832.

1834. G[OATLEY], T. The Account of the Oyster Catcher [Hæmatopus ostralegus]. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 151, 152.
Cf. *op. cit.*, vi, p. 151.

1846. CHENNELL, F. A. Occurrence of the Oyster-Catcher [Hæmatopus ostralegus] inland. < *Zoologist*, iv, 1846, p. 1212.

1846. HALL, T. Longevity of the Oyster Catcher [Hæmatopus ostralegus, æt. 30]. < *Zoologist*, iv, 1846, p. 1501.

1848. CABOT, S., JR. [Comparison of the American and European Oyster-catcher (Hæmatopus).] < *Proc. Bost. Soc. Nat. Hist.*, iii. 1848, pp. 43, 44.
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1848. CABOT, S., JR. American and European Oyster-catcher. < *Am. Journ. Sci.*, vi, 1848, p. 433.
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1850. GARTH, J. C. Turnstone [Strepsilas interpres] associating with Pigeons. < *Zoologist*, viii, 1850, p. 2652.

1858. JÄGER, C. [Hæmatopus ostralegus am Main.] < *Naumannia*, viii, 1858, p. 169.

1863. SAXBY, H. L. Green Variety of the Oystercatcher's [Hæmatopus ostralegus] Egg. < *Zoologist*, xxi, 1863, p. 8725.

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1868. HARVIE-BROWN, J. A. Plumage of the Oystercatcher [Hæmatopus ostralegus]. < *Zoologist*, 2d ser., iii, 1868, p. 1178.

1879. "MOWITCH." Black Oyster Catcher [Hæmatopus niger]. < *Forest and Stream*, xiii, No. 14, Nov. 6, 1879, p. 785.
Its occurrence in British Columbia.

Scolopacidæ.

1765. STRÖM, H. Beskrivelse voor en Norsk Strand sneppe, kaldet Fiöre-pist [Tringa sp.]. < *Kong. Norske Vidensk.-Selsk. Skrift.*, iii, 1765, pp. 440–445.

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1794. MARKWICK, W. Additional Remarks on the Wood Sandpiper, Tringa [Totanus] glareola. < *Trans. Linn. Soc.*, ii, 1794, p. 325.

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On the migration of this species.

1824. STRAUS, —. Mémoire sur le Scolopax Brehmii; par M. Kaup. . . . < *Féruss. Bull.*, 2ᵉ sect., i, 1824, p. 183.

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1825. [MORRISON, —.] Sur la Bécasse [Scolopax rusticola]. < *Féruss. Bull.*, 2ᵉ sect., vi, 1825, pp. 98, 99.

Extrait de l'*Edinb. Philos. Journ.*, x, 1823, pp. 198, 199; sur les migrations de cet oiseau.

1825. VIGORS, N. A. A description of a new Species of Scolopax [sabini] lately discovered in the British Islands; . . . < *Trans. Linn. Soc. London*, xiv, pt. iii, 1825, pp. 556–562, pl. xxi.

The paper is of more extended scope, and the full title will be found in the Fourth (British) Instalment of this Bibliography. The new Snipe is figured on the plate.

1825. VIGORS, N. A. [Scolopax sabini.] < *Philos. Mag.*, lxv, 1825, pp. 433–437.

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1826. LESS[ON, R. P.]. Description d'une nouvelle espèce de Scolopax [sabini], découverte récemment dans les îles brittaniques, . . . < *Féruss. Bull.*, 2ᵉ sect., vii, 1826, pp. 250, 251.

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Cf. *op. cit.*, viii, 1835, p. 614.

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4 spp. carefully discriminated. The modest author concludes his article thus: "It is by such communications as the above, that in my opinion your Magazine may be rendered most valuable."—Cf. *op. cit.*, iii, 1830, pp. 27–30, figg. 2–4.

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1829. "J. G. C." The Bird [Gallinago] with the Sound like the Bleating of a Goat. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 207.

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Notice of the reading of a paper relating to *Totanus glottis* Cuv.

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11 Arten.—*T. brehmii, salicaria, stagnatilis, gallinago, septentrionalis, rivalis, faeroensis, brachypus, lacustris, peregrina,* ———.—*T. salicaria*, Artkennzeichen, Beschreibung, Zergliederung, Aufenthalt, Betragen, Nahrung, Fortpflanzung.—*T. alticeps*, p. 123.

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1837. Editorial. [Third occurrence in Britain of] Macrorampus [sic] griseus. < *Mag. of Zool. and Bot.*, i, 1837, p. 104.

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1839. THOMPSON, W. On the Breeding of the Woodcock (Scolopax rusticola, Linn.), in Ireland. < *Ann. Nat. Hist.*, ii, 1839, pp. 337–348.

1839. WILMOT, E. E. Breeding of the Woodcock [Scolopax rusticola] in England. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, p. 255.

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Une petite monographie.

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Totanus fuscus, fig. 1; *T. glottis*, f. 2; *Limicola pygmæa*, f. 3.

1858. BUCKLEY, H. Occurrence of the Wood Sandpiper [Totanus glareola] near Birmingham. < *Zoologist*, xvi, 1858, p. 6266.

1858. GADAMER, H. Das Balzen der Scolopax [Gallinago] major. < *J. f. O.*, vi, 1858, pp. 235–237.

1858. JÄCKEL, [A. J.] Ueber das Schnurren der Bekassine [Gallinago media]. < *Naumannia*, viii, 1858, pp. 490–495.

1858. KÖNIG-WARTHAUSEN, R. [Eier von Numenius arquatus.] < *Naumannia*, viii, 1858, pp. 508, 509.

1858. MEVES, W. On the Snipes' "neighing" or humming noise, and on its Tail-feathers' systematic value. < *P. Z. S.*, xxvi, 1858, pp. 199–202, woodcc.
Contains remarks by the translator, J. Wolley, Jr.

1858. MEVES, W. On the Snipe's "neighing" or humming noise and on its Tail-feathers' systematic value. < *Ann. Mag. Nat. Hist.*, 3d ser., 1858, pp. 303–306.
From *P. Z. S.*, Apr. 13, 1858, pp. 199–202.

1858. STEVENSON, H. Occurrence of the Broad-billed Sandpiper (Tringa platyrhynca [sic]) for the third time in Norfolk. < *Zoologist*, xvi, 1858, p. 6096.

1858. THOMPSON, W. Occurrence of the Pigmy Curlew [Tringa subarquata] at Weymouth. < *Zoologist*, xvi, 1858, p. 6244.

1859. BUXTON, T. F. Woodcock's [Scolopax rusticola] Nest in Norfolk. < *Zoologist*, xvii, 1859, p. 6562.

1859. GRAY, G. R. [Exhibition of a drawing of Tringa pectoralis.] < *P. Z. S.*, xxvii, 1859, p. 130.

1859. HARTLAUB, G. Ueber Eurinorhynchus pygmaeus (Lin.) < *J. f. O.*, vii, 1859, pp. 325–329.
History, synonymy, description.

1859. MATHEWS, M. A. Notes on the Wood Sandpiper [Totanus glareola] and Dunlin [Tringa alpina]. < *Zoologist*, xvii, 1859, pp. 6728, 6729.

1860. BORGGREVE, B. Auch ein Wort über das Meckern der Bekassine [Gallinago media]. < *J. f. O.*, viii, 1860, pp. 63–73.
Vergl. einige Bemerkungen zu diesem Aufsatze von Jäckel, in diesem Journale, Jahrg. 1862, S. 212 und folgg.

1860. LILLJEBORG, W. Notiz über Linné's Original-Exemplar der Platalea pygmaea. (Anmerkung des Herausgebers.) < *J. f. O.*, viii, 1860, pp. 299, 230.
Eurynorhynchus pygmæus. Cf. *J. f. O.*, 1860, p. 460.

1860. [MEVES, W.?] En Notits om Bekkasinerne [Gallinago]. < *Tidssk. Pop. Fremst. af Naturv.*, 2en Række, ii, 1860, p. 444.
Cf. *op. cit.*, iii, 1861, p. 302. See 1858, MEVES, W.

1860. PARFITT, E. Snipes in Summer [in Bridgwater, England]. < *Zoologist*, xviii, 1860, p. 7172.

1860. PELZELN, A. v. Notiz über Linné's Original-Exemplar der Platalea pygmaea. < *J. f. O.*, viii, 1860, pp. 460, 461.
Eurynorhynchus pygmæus. Cf. *J. f. O.*, 1860, p. 299.

1860. RODD, E. H. Occurrence of the Buffbreasted Sandpiper (Tringa [Tryngites] rufescens) near the Land's End. < *Zoologist*, xviii, 1860, p. 7236.

1860. SAVILLE, S. P. Great Mortality amongst Woodcocks (Scolopax rusticola). < *Zoologist*, xviii, 1860, p. 6982.

1860. SAVILLE, S. P. Occurrence of the Whimbrel (Numenius phæopus) in Cambridgeshire. < *Zoologist*, xviii, 1860, p. 7146.

1860. VERREAUX, J. P. Description d'un Oiseau nouveau [Micropalama tacksanowskia]. < *Rev. et Mag. de Zool.*, xii, 1860, pp. 206, 207, pl. xiv.
Later identified with *Pseudoscolopax semipalmatus.*

1861. BRUN, A. Nogle Bemærkninger i Anledning af en Notits om Beccassinerne, i dette Tidsskrifts 2det Bind for 1860. < *Tidssk. Pop. Fremst. af Naturv.*, 2en Række, iii, 1861, pp. 302–310, fig. p. 306.
Musical notation. Cf. *op. cit.*, ii, 1860, p. 444.

1861. Coues, E. A Monograph of the Tringeæ of North America. < *Proc. Acad. Nat. Sci. Phila.*, xiii, 1861, pp. 170–205.

This paper becomes somewhat conspicuous in the literature of *Scolopacidæ*, owing to the fact that we have no great monographs or iconographies in this family of birds. It is the "maiden" effort of a very youthful author, who appears to have been too timid and too inexperienced to do any very brilliant blundering. On this account we may perhaps justify Dr. Sclater's very generous mention of Mr. Coues's as a "name new to ornithologists, but not the less heartily welcome as that of a recruit to our ranks, who begins by fighting his first fight well, and against a very hard subject" (*Ibis*, 1862, p. 84). We may add on our own account that no material modification of the specific determinations of North American Sandpipers has since been made. Two or three additional species have since been ascertained to inhabit this country; but otherwise, the species stand very nearly as Mr. Coues left them twenty years ago. The following genera and species are treated, with synonymy, diagnosis, description, habitat, and general criticism:

1. *Micropalama himantopus* (Bp.) Bd. 2. *Ereunetes pusillus* (L.) Cass. 3. *Tringa canutus* L. 4. *Calidris arenaria* (L.) Ill. 5. *Arquatella maritima* (Brünn.) Bd. 6. *Ancylocheilus subarquata* (Güld.) Kaup. 7. *Pelidna americana* (Cass.) Coues. (*P. pacifica*, Coues, n. sp. prob., p. 189.) 8. *Actodromas minutilla* (V.) Coues. 9. *Actodromas bairdii* Coues, n. sp., p. 194. 10. *Actodromas maculata* (V.) Cass. 11. *Actodromas* (*Heteropygia* sive *Delopygia*, subg. n., p. 190) *bonapartei* (Schl.) Cass. 12. *Actodromas* (*Heteropygia*) *cooperi* (Bd.) Coues. Three species attributed to North America by other authors are noticed and discarded: *Actodromas minuta; A. temminckii; Limicola pygmæa.* The new species, *A. bairdi*, has been considered invalid by Schlegel, who evidently knew nothing about it. The specific distinction of *Pelidna americana* from *P. alpina* is very questionable, and not now generally conceded.

The Sandpipers ascribed to North America since the appearance of this monograph are the following: 1. *Ereunetes occidentalis* Lawr., *Pr. Phila. Acad.*, 1864, p. 107; doubtfully distinct from *E. pusillus.* 2. *Tringa ptilocnemis* Coues, *Elliott's Rep. Pribylov Islands*, 4to, 1873, not paged; this is *T. crasirostris* Dall, *Am. Nat.*, viii, 1873, p. 635, and *T. gracilis* Harting, *P. Z. S.*, 1874, p. 242, pl. 40. It has proved to be an *Arquatella*, and very near *A. maritima.* 3. *Arquatella couesi*, Ridgw., *Bull. Nutt. Ornith. Club*, v, 1880, p. 160.

No second second specimen of *Tringa cooperi* has ever come to light. The new species of this paper, *A. bairdii*, has proved to be a very common bird of North and South America, before confounded with *bonapartii*, from which it is utterly different. It may have had a prior name, but none such has been established. The suggested "*Pelidna pacifica*" has never been confirmed. The races of *Ereunetes* remarked upon have not since been recognized and are doubtless invalid. Dr. Coues and some others have since adopted Vieillot's name, *fuscicollis*, for what is here called *bonapartii;* but the applicability of the name to this species seems doubtful.—W. S.

1861. "C. W." Die Kampfhähne [Machetes pugnax, in Gefangenschaft]. . . . < *Zool. Gart.*, ii, 1861, p. 116.

1861. Gadamer, H. Das Balzen von Scolopax rusticula. < *J. f. O.*, ix, 1861, p. 217.

1861. Gloger, C. W. L. Das Balzen von Scolopax rusticula betreffend. < *J. f. O.*, ix, 1861, pp. 289, 290.

1862. Barclay, W. L. Occurrence of the Green Sandpiper [Totanus ochropus] at Leyton. < *Zoologist*, xx, 1862, p. 7939.

1862. Blake-Knox, H. The Common Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xx, 1862, pp. 8195, 8196.

1862. Blakiston, T. Occurrence of the Knot [Tringa canutus] in Lancashire in August, and its Eastern Range. < *Zoologist*, xx, 1862, p. 8287.

1862. Bond, F. Note on Sabine's Snipe [Gallinago sabini]. < *Zoologist*, xx, 1862, p. 8000.

1862. Bond, F. Jack Snipe [plumage of Gallinago gallinula]. < *Zoologist*, xx, 1862, p. 8000.

1862. Gatcombe, J. Variety of Snipe [Zool., p. 4704]. < *Zoologist*, xx, 1862, pp. 7938, 7939.

1862. Gatcombe, J. Note on Sabine's Snipe [Gallinago sabinii]. < *Zoologist*, xx, 1862, p. 8035.

1862. Green, G. C. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xx, 1862, p. 8283.

1862. HARVIE-BROWN, J. A. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xx, 1862, p. 8237.

1862. HOLLIS, W. Snipes' Nests in Oxfordshire. < *Zoologist*, xx, 1862, p. 8169.

1862. HORSFALL, W. C. Occurrence of the Great Snipe [Gallinago major] near Malham, in Yorkshire. < *Zoologist*, xx, 1862, p. 8196.

1862. JÄCKEL, A. J. Einige Bemerkungen zu dem Aufsatze: „Auch ein Wort über das Meckern der Bekassine von B. Borggreve" in diesem Journale, Jahrg. 1860, S. 63 ff. < *J. f. O.*, x, 1862, pp. 212–223.

1862. LEVEN, R. W. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xx, 1862, p. 8237.

1862. MAWSON, G. Woodcock [Scolopax rusticola] breeding near Keswick, Cumberland. < *Zoologist*, xx, 1862, p. 8196.

1862. RODD, E. H. [Occurrence of Gallinago sabinii in full plumage in Cornwall.] < *P. Z. S.*, xxx, 1862, p. 13.

1862. RODD, E. H. Examination of a Specimen of Sabine's Snipe [Gallinago sabinii]. < *Zoologist*, xx, 1862, pp. 7882, 7883.

1862. RODD, E. H. Re-examination of Sabine's Snipe [Gallinago sabinii]. < *Zoologist*, xx, 1862, p. 7938.

1862. RODD, E. H. Correction of an Error [Zool., p. 7882, respecting Scolopax sabinii]. < *Zoologist*, xx, 1862, p. 7938.

1862. SAXBY, H. L. Unusual Situation of a Sandpiper's [Tringoides hypoleucus] Nest. < *Zoologist*, xx, 1862, p. 8169.

1862. SAXBY, H. L. Occurrence of the Curlew Sandpiper [Tringa subarquata] at Rochester. < *Zoologist*, xx, 1862, p. 8237.

1862. VIAN, J. Notice sur quelques jeunes Oiseaux d'Europe. < *Rev. et Mag. de Zool.*, xiv, 1862, pp. 369–371, pl. 15, f. 1.
Limosa cinerea.

1862. WAGNER, C. [Fang der Kampfhähne (Machetes pugnax).] < *Zool. Gart.*, iii, 1862, pp. 173, 174.

1863. BLAKE-KNOX, H. On the Diving of the Sandpiper [Tringoides hypoleucus]. < *Zoologist*, xxi, 1863, pp. 8632, 8633.

1863. BLAKE-KNOX, H. The Sandpiper [Tringoides hypoleucus] Diving. < *Zoologist*, xxi, 1863, pp. 8493, 8494.

1863. BOULTON, W. W. Jack Snipe [Gallinago gallinula] shot on the River Hull. < *Zoologist*, xxi, 1863, p. 8770.

1863. BOULTON, W. W. Ruff (Machetes pugnax ♂) shot near Beverley. < *Zoologist*, xxi, 1863, p. 8827.

1863. BOULTON, W. W. Occurrence of the Green Sandpiper [Totanus ochropus] near Beverley. < *Zoologist*, xxi, 1863, p. 8771.

1863. GRILL, J. W. Macht der Strandpfeiffer, Totanus hypoleucus Lin., immer eine „Runde"? < *J. f. O.*, xi, 1863, pp. 159, 160.

1863. HADFIELD, H. American Snipe [called Scolopax americanus; qu. Gallinago wilsoni?]. < *Zoologist*, xxi, 1863, pp. 8446, 8447.

1863. HADFIELD, H. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xxi, 1863, p. 8447.

1863. HADFIELD, H. Common Snipe (Scolopax gallinago [Gallinago media]). < *Zoologist*, xxi, 1863, p. 8494.

1863. HADFIELD, H. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xxi, 1863, pp. 8524–8526.

1863. HARTING, J. E. The Curlew Sandpiper [Tringa subarquata] near Yarmouth. < *Zoologist*, xxi, 1863, pp. 8827, 8828.

1863. Harvie-Brown, J. A. Sandpiper [Tringoides hypoleucus] Diving. < *Zoologist*, xxi, 1863, p. 8770.

1863. Horsfall, W. C. Occurrence of the Solitary Snipe [Gallinago major] near Leeds. < *Zoologist*, xx, 1863, p. 8330.

1863. Leven, R. H. The Sandpiper [Tringoides hypoleucus] a Diver. < *Zoologist*, xxi, 1863, p. 8691.

1863. Newton, A. On the Breeding of the Green Sandpiper (Helodromas ochropus). < *P. Z. S.*, xxxi, 1863, pp. 529–532.

On trees, in Thrushes' nests, etc.

1863. Rodd, E. H. Occurrence of Temminck's Stint [Tringa temmincki] at Scilly. < *Zoologist*, xxi, 1863, p. 8827.

1863. Rodd, E. H. The Spotted Redshank (Totanus fuscus) in Cornwall. < *Zoologist*, xxi, 1863, p. 8827.

1863. Rogers, H. Reeves [Machetes pugnax ♀] in the Isle of Wight. < *Zoologist*, xxi, 1863, p. 8827.

1863. Saxby, H. L. Woodcock (Scolopax rusticola) in Shetland. < *Zoologist*, xxi, 1863, p. 8494.

1863. Saxby, H. L. Five Eggs in the Nest of a Common Snipe [Gallinago media]. < *Zoologist*, xxi, 1863, p. 8691.

1863. Saxby, H. L. Redshank [Totanus calidris] breeding in Shetland. < *Zoologist*, xxi, 1863, p. 8725.

1863. Stevenson, H. Blacktailed Godwit (Limosa melanura) at Yarmouth. < *Zoologist*, xxi, 1863, p. 8330.

1863. Swinhoe, R. [Exhibition of a rare Wader, Pseudoscolopax semipalmatus.] < *P. Z. S.*, xxxi, 1863, p. 181.

1864. Armistead, J. J. Occurrence of the Little Stint [Tringa minuta] near Leeds. < *Zoologist*, xxii, 1864, p. 9289.

1864. Boulton, W. W. Solitary Snipe [Gallinago major] near Beverley. < *Zoologist*, xxii, 1864, pp. 8890, 8891.

1864. Boulton, W. W. Ruff and Reeve [Machetes pugnax ♂ ♀] near Beverley. < *Zoologist*, xxii, 1864, p. 9362.

1864. Boulton, W. W. Knot [Tringa canutus] and Bartailed Godwit [Limosa lapponica], in Summer Plumage, at Filey. < *Zoologist*, xxii, 1864, p. 9362.

1864. Brunton, T. Early Breeding of the Woodcock [Scolopax rusticola, in Perth]. < *Zoologist*, xxii, 1864, p. 9119.

1864. Clarke, J. A. Sanderling [Calidris arenaria] at Gravesend. < *Zoologist*, xxii, 1864, pp. 9329, 9330.

1864. Cordeaux, J. Note on the Whimbrel [Numenius phæopus] on the Lincolnshire Coast. < *Zoologist*, xxii, 1864, p. 9115.

1864. Cordeaux, J. Curlew Sandpiper [Tringa subarquata] and Dunlin [T. alpina] on the Lincolnshire Coast. < *Zoologist*, xxii, 1864, p. 9118.

1864. Cordeaux, J. Note on the Appearance of the Little Stint [Tringa minuta] in the Humber. < *Zoologist*, xxii, 1864, p. 9330.

1864. Dutton, J. Bartram's [Actiturus bartramius] and the Purple Sandpiper [Tringa maritima] in Sussex. < *Zoologist*, xxii, 1864, p. 9118.

1864. Gunn, T. E. Ruff and Reeves [Machetes pugnax ♂ ♀] in Norfolk. < *Zoologist*, xxii, 1864, p. 9290.

1864. Gunn, T. E. Occurrence of the Greenshank [Totanus glottis] near Norwich. < *Zoologist*, xxii, 1864, p. 9290.

1864. Harvie-Brown, J. A. Reeve [Machetes pugnax ♀] killed near Grangemouth. < *Zoologist*, xxii, 1864, p. 9118.

1864. Jeffrey, W. Blacktailed Godwit [Limosa melanura] and Spotted Redshank [Totanus fuscus] near Chichester. < *Zoologist*, xxii, 1864, p. 9289.

1864. Mathews, M. A. Ruff [Machetes pugnax ♂] at Weston-Super-Mare. < *Zoologist*, xxii, 1864, p. 8961.

1864. Meyer, R. [Schneeweisse Waldschnepfe (Scolopax rusticola).] < *Zool. Gart.*, v, 1864, p. 203.

1864. Newton, A. On the Breeding of the Green Sandpiper (Helodromas ochropus). < *Zoologist*, xxii, 1864, pp. 9115–9118.

From *P. Z. S.*, Dec. 8, 1863.

1864. Newton, A. On the Breeding of the Green Sandpiper (Helodromas ochropus). < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, pp. 221–224.

From *P. Z. S.*, Dec. 8, 1863, pp. 529–532, *q. v.*

1864. Power, W. H. Occurrence of the Ruff [Machetes pugnax] and Curlew Sandpiper [Tringa subarquata] at Kingsbury Reservoir, Middlesex. < *Zoologist*, xxii, 1864, p. 9289.

1864. Rogers, H. Little Stint [Tringa minuta] in the Isle of Wight. < *Zoologist*, xxii, 1864, p. 8891.

1865. Atkinson, J. C. Young Snipes. < *Zoologist*, xxiii, 1865, p. 9793.

1865. Beckmann, L. Der Oberschnabel der Waldschnepfe [Scolopax rusticola]. < *Zool. Gart.*, vi, 1865, pp. 130–133, figg. 4.

Power and mode of inflection of the upper mandible. Cf. *Zool. Rec.*, i, p. 93.

1865. Blake-Knox, H. Malformation of a Snipe's Beak. < *Zoologist*, xxiii, 1865, p. 9564.

1865. Gunn, T. E. Abundance of Woodcocks [Scolopax rusticola] in Norfolk. < *Zoologist*, xxiii, 1865, pp. 9468, 9469.

1865. Gurney, J. H. Note on the Purple Sandpiper [Tringa maritima]. < *Zoologist*, xxiii, 1865, p. 9468.

Cf. *tom. cit.*, p. 9541.

1865. Hadfield, H. Plumage of the Ruff [Machetes pugnax ♂]. < *Zoologist*, xxiii, 1865, pp. 9628, 9629.

1865. Hodgson, C. B. Snipe Nesting in Warwickshire. < *Zoologist*, xxiii, 1865, p. 9628.

1865. Jesse, W. Snipe Nesting in Liphook. < *Zoologist*, xxiii, 1865, p. 9793.

1865. Lunel, G. Note sur le Bécasseau platyrhynque, Tringa platyrhyncha, et description d'un caractère nouveau observé chez cet Oiseau. < *Bull. Soc. Ornith. Suisse*, i, 1865, pp. 31–37, pl. i.

Not seen.—The new character is nudity of the chin.

1865. Mathew, M. A. Abundance of Jack Snipe [Gallinago gallinula] during the past Winter. < *Zoologist*, xxiii, 1865, p. 9564.

1865. Mathew, M. A. Snipe [Gallinago media, in England] in the middle of July. < *Zoologist*, xxiii, 1865, p. 9733.

1865. Mathew, M. A. Woodcock [Scolopax rusticola, in England] in July. < *Zoologist*, xxiii, 1865, p. 9733.

1865. Mathew, M. A. The Ruff [Machetes pugnax ♂] on the Northam Burrows, North Devon. < *Zoologist*, xxiii, 1865, p. 9848.

1865. Power, W. H. Curlew Sandpiper [Tringa subarquata] at Kingsbury Reservoir. < *Zoologist*, xxiii, 1865, p. 9848.

1865. Power, W. H. Temminck's Stint [Tringa temmincki] near Rainham, Kent. < *Zoologist*, xxiii, 1865, p. 9848.

1865. Pryor, M. R. Solitary Snipe [Gallinago major] near Thetford. < *Zoologist*, xxiii, 1865, p. 9564.

1865. Rodd, E. H. Curlew Tringa [subarquata]; Change of Plumage. < *Zoologist*, xxiii, 1865, pp. 9793, 9794.

1865. Rodd, E. H. Ruffs and Reeves [Machetes pugnax ♂ ♀] in Cornwall. < *Zoologist*, xxiii, 1865, pp. 9564, 9565.

1864–65. Schlegel, H. Scolopaces. < *Mus. Nat. Hist. Pays-Bas*, 5e livr., 1864, pp. 1–86; 6e livr., 1864, pp. 87–102; 7e livr., 1865, pp. 103–112.

The birds of this group are treated under the genera *Scolopax* (3 spp.), *Gallinago* (16), *Rhynchaea* (2), *Prosobonia* (1), *Limosa* (8), *Tringa* (17), *Phalaropus* (3), *Totanus* (12), *Actitis* (4), *Numenius* (10), *Recurvirostra* (3), and *Himantopus* (5)—rather an improvement upon the author's custom of classifying, though we still miss some important genera. There are enumerated a total of 1,280 specimens in the Leyden Museum. Cf. *Ibis*, 1865, p. 533.

1866. Angus, W. C. Wood Sandpiper [Totanus glareola] in Aberdeenshire. < *Zoologist*, 2d ser., i, 1866. pp. 524, 525.

1866. Bischofshausen, R. v. Beitrag zur Naturgeschichte der Waldschnepfe. (Scolopax rusticola.) < *Zool. Gart.*, vii, 1866, pp. 187–191.

1866. Blake-Knox, H. The Buffbreasted Sandpiper [Tryngites rufescens] in Belfast. < *Zoologist*, 2d ser., i, 1866, p. 457.

1866. Brooking-Rowe, J. Large Snipe. < *Zoologist*, 2d ser., i, 1866, p. 97.

1866. Bullmore, W. K. On the Occurrence of Bartram's Sandpiper [Actiturus bartramius] near Falmouth. < *Zoologist*, 2d ser., i, 1866, pp. 37–40.

A notice of the same appeared in the London 'Times' of Nov. 14, 1865.

1866. Dutton, J. Purple Sandpiper [Tringa maritima] at Eastbourne. < *Zoologist*, 2d ser., i, 1866, p. 145.

1866. Gatcombe, J. The Purple Sandpiper [Tringa maritima, in Cornwall and Devon]. < *Zoologist*, 2d ser., i, 1866, pp. 96, 97.

From the London "Field" of Jan. 13, 1866.

1866. Gunn, T. E. Solitary Snipe [Gallinago major] in Suffolk. < *Zoologist*, 2d ser., i, 1866, p. 40.

1866. Harvie-Brown, J. A. Ruff [Machetes pugnax ♂] near Grangemouth. < *Zoologist*, 2d ser., i, 1866, p. 524.

1866. Legge, W. V. [On the nesting of Totanus calidris in Kent and Essex, England.] < *Ibis*, 2d ser., ii, 1866, pp. 420, 421.

1866. Lowe, J. Temminck's Stint [Tringa temmincki] at King's Lynn. < *Zoologist*, 2d ser., i, 1866, p. 457.

1866. Power, W. H. Temminck's Stint [Tringa temmincki] at Rainham. < *Zoologist*, 2d ser., i, 1866, p. 311.

1866. Power, W. H. Late Stay of the Snipe [Gallinago media, at Rainham]. < *Zoologist*, 2d ser., i, 1866, p. 311.

1866. Power, F. D. Wood Sandpiper [Totanus glareola] at Kingsbury Reservoir. < *Zoologist*, 2d ser., i, 1866, p. 457.

1866. Smee, A. H. Occurrence of the Purple Sandpiper [Tringa maritima] at Shoreham. < *Zoologist*, 2d ser., i, 1866, p. 190.

1866. Smith, A. P. Hard Fate of a Woodcock [Scolopax rusticola, impaled on an arrow-shaped weather-cock]. < *Zoologist*, 2d ser., i, 1866, p. 271.

1866. Wharton, C. B. Whimbrel [Numenius phæopus] at the Kingsbury Reservoir. < *Zoologist*, 2d ser., i, 1866, p. 271.

1867. Altum, B. Die Waldschnepfe [Scolopax rusticola]. Ein monographischer Beitrag zur Jagdzoologie von Dr. Julius Hoffmann, Stuttgart, K. Thienemann's Verlag. < *J. f. O.*, xv, 1867, pp. 110–112.

Uebersicht.

1867. Anon. Sneppereder i Træer. < *Tidssk. Pop. Fremst. af Naturv.*, 3e Række, iv, 1867, p. 354.

Nidification of *Totanus ochropus* in trees. See 1863 and 1864, Newton, A.

1867. Anon. Singular Habit of the Woodcock [Scolopax rusticola]. < *Zoologist*, 2d ser., ii, 1867, p. 635.

From the London 'Field.' Elevating and spreading the tail like a turkey.

1867. Austin, H. Dunlins [Tringa alpina] at Kingsbury Reservoir. < *Zoologist*, 2d ser., ii, 1867, p. 829.

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1869. Harting, J. E. On rare or little-known Limicolæ. [Part II.] < *Ibis*, 2d ser., v, 1869, pp. 426–434, figg. and pl. xii.

Continued from *tom. cit.*, p. 310. This second instalment of the series of articles treats monographically of *Eurynorhynchus pygmæus.*

Parts I, III, IV, V, treat of various species of *Charadriidæ*, as stated in previous pages of this Bibliography, where they are all duly entered. But in citing the whole series collectively, as consisting of five papers, dating 1869–73 (see *anteà*, p. 838), I have overlooked a sixth paper, on *Recurvirostra*, 1874 (see *posteà*, p. 875). Please make the necessary correction, in ink, in your copy of this Bibliography.

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1869. Ward, E. [Exhibition of a specimen of a melanotic variety of the Common Woodcock (Scolopax rusticola).] < *P. Z. S.*, xxxvii, 1869, p. 473.

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1870. Brandreth, H. P. Woodcock [Scolopax rusticola] on the 19th of March [at Standish Rectory]. < *Zoologist*, 2d ser., v, 1870, p. 2141.

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1870. Gunn, T. E. Wood Sandpipers [Totanus glareola] and Greenshanks [Totanus glottis] in Norfolk. < *Zoologist*, 2d ser., v, 1870, p. 2384.

1870. Gunn, T. E. Solitary Snipe [Gallinago major] in Norfolk. < *Zoologist*, 2d ser., v, 1870, p. 2384.

1870. Gurney, J. H., Jr. Woodcock [Scolopax rusticola] and Godwit [Limosa ——]. < *Zoologist*, 2d ser., v, 1870, p. 2345.

1870. Harting, J. E. [Exhibition of a specimen of Totanus fuscus.] < *P. Z. S.*, xxxviii, 1870, p. 221.

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1870. Horne, C. Jack Snipe [Gallinago gallinula] in a Norwood Garden. < *Zoologist*, 2d ser., v, 1870, p. 2141.

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1870. Moor, E. C. Green Sandpiper [Totanus ochropus] at Hasketon. < *Zoologist*, 2d ser., v, 1870, p. 2105.

1870. Rickards, M. S. C. The American Stint [Tringa minutilla] at Northam Burrows. < *Zoologist*, 2d ser., v, 1870, p. 2025.

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1870. Rodd, E. H. Pectoral Stint or Sandpiper [Tringa maculata] at Scilly. < *Zoologist*, 2d ser., v, 1870, p. 2346.

1870. Rodd, E. H. [Another case of Tringa maculata] Pectoral Sandpiper at Scilly. < *Zoologist*, 2d ser., v, 1870, p. 2346.

1870. Rodd, E. H. Buffbreasted Sandpiper [Tryngites rufescens] at Scilly. < *Zoologist*, 2d ser., v, 1870, p. 2346.

1870. Rodd, E. H. Schinz's Stint [Tringa bonapartii] at Scilly. < *Zoologist*, 2d ser., v, 1870, pp. 2384, 2385.

1870. Rodd, E. H. Schinz's Stint [Tringa bonapartii] at the Lizard. < *Zoologist*, 2d ser., v, 1870, p. 2409.

1870. Smee, A. H. Woodcock [Scolopax rusticola] in August. < *Zoologist*, 2d ser., v, 1870, p. 2384.

1870. Smee, A. H. Little Stint [Tringa minuta], &c., near Leigh. < *Zoologist*, 2d ser., v, 1870, p. 2385.

1870. Smith, Cecil. Ruff [Machetes pugnax ♂] in Somersetshire. < *Zoologist*, 2d ser., v, 1870, p. 2103.

1870. Smith, Cecil. Schinz's Sandpiper [Tringa bonapartii] in North Devon. < *Zoologist*, 2d ser., v, 1870, p. 2409.

1870. Smith, Cecil. Sternum of Schinz's Sandpiper [Tringa bonapartii]. < *Zoologist*, 2d ser., v, 1870, p. 2409.

1871. Bates, B. Schinz's Sandpiper [Tringa bonapartii] at Eastbourne. < *Zoologist*, 2d ser., vi, 1871, p. 2442.

1871. Blake-Knox, H. Little Stint [Tringa minuta] on the Dublin Coast. < *Zoologist*, 2d ser., vi, 1871, p. 2609.

1871. Brooke, V. [Remarks upon exhibition of a specimen of Numenius borealis from Sligo, Ireland.] < *P. Z. S.*, xxxix, 1871, p. 299.

1871. Desfontaines, G. La Ganga [Actiturus bartramius] de México. < *La Naturaleza*, ii, 1871, pp. 154–158.

Charactéres genéricos y especificos—costumbres y habitos.

1871. FOWLER, A. Woodcocks and Moles. <*Am. Nat.*, iv, 1871, pp. 761, 762.
Philohela minor supposed to prevent the increase of *Soricidæ*.

1871. FULLER, O. The Stilt Sandpiper [Micropalama himantopus] in Massachusetts. <*Am. Nat.*, v, 1871, p. 727.

1871. GUNN, T. E. Solitary Snipes [Gallinago major] in Norfolk. <*Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. GUNN, T. E. Ruffs and Reeves [Machetes pugnax ♂ ♀] at Yarmouth. <*Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. GURNEY, J. H., JR. The Wader at Whitby [*i. e.*, Machetes pugnax, Zool., s. s., p. 2772.] <*Zoologist*, 2d ser., vi, 1871, p. 2806.
Vanellus gregarius or *Machetes pugnax?* As will be seen by several titles below, the "Whitby Wader" occasioned considerable correspondence before it was finally determined to be *Machetes pugnax*. ♂, juv.

1871. GURNEY, J. E., JR. Ruffs [Machetes pugnax ♂, at Romney Bay, near Lydd]. <*Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. HARTING, J. E. [Remarks upon exhibition of a specimen of the so-called Sabine's Snipe.] <*P. Z. S.*, xxxix, 1871, p. 39.
"*Gallinago sabinii*" = *G. gallinula*, melanotic.

1871. HARTING, J. E. The Whitby Wader [Machetes pugnax]. <*Zoologist*, 2d ser., vi, 1871, pp. 2851, 2852.

1871. LEACH, H. R. Temminck's Stint [Tringa temmincki] at Aldeburgh. <*Zoologist*, 2d ser., vi, 1870, p. 2871.

1871. MATHEW, M. A. Schinz's Sandpiper [Tringa bonapartii] at Barnstaple. <*Zoologist*, 2d ser., vi, 1871, pp. 2441, 2442.

1871. MITFORD, R. H. Ruff and Reeve [Machetes pugnax ♂] in Middlesex. <*Zoologist*, 2d ser., vi, 1871, p. 2806.

1871. NEWTON, A. [Exhibition of some rare European Birds' Eggs.] <*P. Z. S.*, xxxix, 1871, pp. 546, 547.
Calidris arenaria remarked upon.

1871. POWER, F. D. Ruff [Machetes pugnax ♂] in Middlesex. <*Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. RICKARDS, M. S. C. Green Sandpiper [Totanus ochropus] at Scilly. <*Zoologist*, 2d ser., vi, 1871, p. 2485.

1871. RICKARDS, M. S. C. Pectoral Sandpiper [Tringa maculata] at Braunton Burrows. <*Zoologist*, 2d ser., vi, 1871, pp. 2808, 2809.

1871. RICKARDS, M. S. C. Greenshank [Totanus glottis] and Green Sandpiper [Totanus ochropus] near Barnstable. <*Zoologist*, 2d ser., vi, 1871, pp. 2809, 2810.

1871. RICKARDS, M. S. C. Wood Sandpiper [Totanus glareola] at Braunton Burrows. <*Zoologist*, 2d ser., vi, 1871, p. 2851.

1871. RODD, E. H. Yellowshanked Sandpiper [Totanus flavipes] near Marazion. <*Zoologist*, 2d ser., vi, 1871, pp. 2807, 2808.

1871. RODD, E. H. Snipe-shooting at St. Mary's, Scilly. <*Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. SIMPSON, M. Name of a Wader [*i. e.*, Machetes pugnax]. <*Zoologist*, 2d ser., vi, 1871, p. 2772.

1871. SIMPSON, M. The Whitby Wader [Totanus bartramius? *i. e.*, Machetes pugnax]. <*Zoologist*, 2d ser., vi, 1871, p. 2870.

1871. SMITH, CECIL. Wood Sandpiper [Totanus glareola] in Somersetshire. <*Zoologist*, 2d ser., vi, 1871, p. 2441.

1871. TACZANOWSKI, L. Notiz über die ostsibirischen Numenius-Arten. <*J. f. O.*, xix, 1871, pp. 56–61.
NN. arquata, australis, nasicus.

1871. Taczanowski, L. Nachtrag zur Notiz [tom. cit. 56] über die ostsibirischen Numenius-Arten. < *J. f. O.*, xix, 1871, pp. 395, 396.

1871. Tuck, T. G. Blackwinged Stilt [i. e., Totanus calidris] near Bury St. Edmunds. < *Zoologist*, 2d ser., vi, 1871, p. 2684.
See *op. cit.*, vii, 1872, p. 3064, where identified as above.

1871. Tuck, T. G. Spotted Sandpiper [Tringoides macularius] near Bury St. Edmunds. < *Zoologist*, 2d ser., vi, 1871, p. 2684.

1872. Bond, F. The Whitby Wader [Machetes pugnax]. < *Zoologist*, 2d ser., vii, 1872, p. 2905.
At length determined to be *Machetes pugnax*, ♂, juv.

1872. Boyes, F. Snipes [Gallinago sp.] "Drumming" in Winter. < *Zoologist*, 2d ser., vii, 1872, p. 2994.

1872. Corbin, G. B. Woodcock [Scolopax rusticola] Breeding in the New Forest. < *Zoologist*, 2d ser., vii, 1872, p. 3260.

1872. Durnford, H. Sanderlings [Calidris arenaria] at the Mouth of the Mersey. < *Zoologist*, 2d ser., vii, 1872, p. 3149.

1872. Feilden, H. W. Woodcocks [Scolopax rusticola] breeding in Wolmar Forest. < *Zoologist*, 2d ser., vii, 1872, p. 3188.

1872. Feilden, H. W. Sabine's Snipe [Gallinago sabinii] in Scotland. < *Zoologist*, 2d ser., vii, 1872, p. 3188.

1872. Gurney, J. H., Jr. Whimbrel [Numenius phæopus] near Stratford and Dunlin [Tringa alpina] near Leamington. < *Zoologist*, 2d ser., vii, 1872, p. 3273.

1872. Harting, J. E. Supposed Occurrence of Wilson's Snipe in Cornwall [Zool. s. s., 3149]. < *Zoologist*, 2d ser., vii, 1872, pp. 3273, 3274.
It was only a var. of *G. media*. But an authentic instance of occurrence of *G. wilsoni* in England is here noted.

1872. Hügel, A. v. Woodcock [Scolopax rusticola] breeding in the New Forest. < *Zoologist*, 2d ser., vii, 1872, p. 3236.

1872. Leach, H. R. Sanderlings [Calidris arenaria] and Cockle [attached to its foot]. < *Zoologist*, 2d ser., vii, 1872, p. 3314.

1872. Mathew, G. F. Greenshanks [Totanus glottis], &c., near Newton. < *Zoologist*, 2d ser., vii, 1872, p. 2945.

1872. Pickard-Cambridge, O. Snipe [Gallinago sp.] "Drumming" on the 2nd of February. < *Zoologist*, 2d ser., vii, 1872, pp. 2993, 2994.

1872. Rickards, M. S. C. [Musky] Scent of Wood Sandpiper [Totanus glareola]. < *Zoologist*, 2d ser., vii, 1872, p. 2945.

1872. Rodd, E. H. Wilson's Snipe [i. e., Gallinago media] in Cornwall. < *Zoologist*, 2d ser., vii, 1872, p. 3149.
See *ibid.*, p. 3273.

1872. Stevens, S. Spotted Redshank [Totanus fuscus] near Arundel. < *Zoologist*, 2d ser., vii, 1872, p. 3316.

1872. Tuck, T. G. Redshank [Totanus calidris] recorded [Zool. s. s., 2684] as Black-winged Stilt. < *Zoologist*, 2d ser., vii, 1872, p. 3064.

1873. Anon. Woodcock [Scolopax rusticola] at Clapton. < *Zoologist*, 2d ser., viii, 1873, p. 2529.

1873. Anon. [Manner of "boring" of Philohela minor.] < *Forest and Stream*, i, Nov. 27, 1873, p. 251.

1873. Blasius, W. [Ueber Gallinago heterocerca Cab.] < *Ber. über d. xx. Versamml. d. Deutsch. Orn.-Ges.*, 1873, p. 11.

1873. Corbin, G. B. Whimbrel [Numenius phæopus] in the New Forest. < *Zoologist*, 2d ser., viii, 1873, pp. 3651, 3652.

1873. CORDEAUX, J. On the Migration and Habits of the Curlew Sandpiper (Tringa subarquata, Güldenstaedt). < *Zoologist*, 2d ser., viii, 1873, pp. 3720–3722.

1873. DALL, W. H. Addition to the Avi-fauna of North America. < *Am. Nat.*, vii, 1873, pp. 634, 635.

Tringa "*crassirostris*", [i. e., *T. ptilocnemis* Coues,] in the Aleutian Islands.

1873. DURNFORD, H. Dark Variety of the Common Snipe [Gallinago media]. < *Zoologist*, 2d ser., viii, 1873, p. 3529.

1873. FOULKS, O. D. The Woodcock [Philohela minor]. < *Am. Sportsman*, ii, 1873, p. 178.

Biography.

1873. HARVIE-BROWN, J. A. Curlew Sandpiper [Tringa subarquata], Ruffs and Reeves [Machetes pugnax, ♂ ♀, near Falkirk], &c. < *Zoologist*, 2d ser., viii, 1873, p. 3803.

1873. LILFORD, *Lord*. [Occurrence of Numenius hudsonicus in the Coto de Doñana, Spain.] < *Ibis*, 3d ser., iii, 1873, p. 98.

1873. "MASSACHUSETTS" *and* "BORER". Where Woodcock [Philohela minor] moult. < *Am. Sportsman*, ii, 1873, p. 172. See also p. 178.

1873. PRÄLLE, [W. A. E.] [Ueber Telmatias gallinula L.-Eier aus Hannover.] < *Ber. über d. xx. Versamml. d. Deutsch. Orn.-Ges.*, 1873, pp. 5–7.

1873. ROPE, G. T. Nesting of the Woodcock [Scolopax rusticola] in Suffolk. < *Zoologist*, 2d ser., viii, 1873, p. 3616.

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In „ Ornithologische Beobachtungen, " St. Gallen, 1873.

1873. "W. E. H." [Late breeding of Philohela minor.] < *Am. Sportsman*, iii, 1873, p. 70.

1873. WHITAKER, J., JR. Spotted Redshank [Totanus fuscus, in Beetwood Park]. < *Zoologist*, 2d ser., viii, 1873, p. 3492.

1874. "A. M." Arrival of Woodcock [Philohela minor, at Fort Lee, New Jersey]. < *Am. Sportsman*, ii, 1874, p. 412.

1874. ANON. [EDITORIAL.] The Scarcity of Woodcock [Philohela minor]. < *Forest and Stream*, iii, Dec. 10, 1874, p. 277.

1874. "A. W." Woodcock [Philohela minor] Carrying their Young. < *Am. Sportsman*, iv, 1874, p. 139.

Nestlings supposed to attach themselves to parent. Compare iii, p. 379, and iv, pp. 10, 75, 92. It was about this time that the curious fact that the bird transports her young when in danger began to be noticed in this country, though long known in case of *Scolopax rusticola* (see *Zoologist*, xi, 1853, p. 4017). Various writers describe the manner in which they suppose it to be done—not easy to determine, in the nature of the case. According to the most reliable observations, the bird holds the young one so closely to her abdomen, between her legs, that the two appear as one body; thus apparently giving rise to the supposition of "A. W." that the young "attach themselves to the parent." A plate has lately been published (*Zoologist*, 3d ser., iii, 1879, p. 433) figuring the European Woodcock (*Scolopax rusticola*) flying with a young one in her claws, remote from her body, much as a hawk would carry a chicken. But there is doubtless a difference in this respect; for the text of the same article speaks of another case in which the little one was held tightly to the body of the mother, between her thighs, exactly as the American bird has been seen to do. The two species probably do not differ from each other in the way they do it, though this may not be always exactly the same in either.

1874. BATTY, J. H. Woodcock [Philohela minor] killing themselves. < *Am. Sportsman*, iv, 1874, p. 76.

1874. BREWSTER, W. Love-Notes of the Woodcock [Philohela minor]. < *Am. Sportsman*, iv, 1874, p. 19. See also pp. 41, 92.

Singing on the wing after sunset.

1874. COUES, E. New Species of North American Bird [Tringa ptilocnemis]. <*Am. Nat.*, viii, 1874, pp. 500, 501.

Reproduction of the description of *Tringa ptilocnemis*, Coues, from H. W. Elliott's *Rep. Prybilov Islands*, 4to, 1873, App., not paged—the original being nearly inaccessible.

1874. DURNFORD, H. Malformation in Upper Mandible of a Redshank [Totanus calidris]. <*Zoologist*, 2d ser., ix, 1874, pp. 3999, 4000.

1874. "DRY LAND." Late woodcock [Philohela minor]. <*Forest and Stream*, iii, Dec. 3, 1874, p. 267.

Philohela minor and *Gallinago wilsoni* at Salem, Mass., in December.

1874. "E. H. L." Curious trick of a woodcock [Philohela minor]. <*Am. Sportsman*, iii, 1874, p. 379. See also iv, p. 10.

Parent woodcock carrying young in her beak.

1874. HARTING, J. E. On a new Species of Tringa [Tringa gracilis] from Alaska. <*P. Z. S.*, xlii, 1874, pp. 242-244, pl. xl.

The pl. shows also bill, feet, and tail of *T. alpina* and *T. crassirostris.*—The species was later identified with *T. ptilocnemis*, Coues.

1874. "HOMO." [C. S. WESTCOTT.] Upland Plover [Actiturus bartramius] Shooting. <*Am. Sportsman*, iv, 1874, p. 231.

1874. "HOMO." [C. S. WESTCOTT.] The Summer moult of Woodcock [Philohela minor]. <*Forest and Stream*, ii, March 19, 1874, p. 86.

1874. "HOMO." [C. S. WESTCOTT.] Woodcock [Philohela minor] and Woodcock Shooting. <*Forest and Stream*, iii, Oct. 8, 1874, p. 131.

1874. "HOMO." [C. S. WESTCOTT.] Snipe [Gallinago wilsoni] and Snipe Shooting. <*Forest and Stream*, iii, Oct. 22, 1874, p. 163.

1874. "H. P. S." Early Woodcock [Philohela minor]. <*Am. Sportsman*, iii, 1874, p. 395.

At Troy, N. Y., March 7.

1874. "PHILOHELA." Woodcock [Philohela minor] in Boston [Boylston street]. <*Am. Sportsman*, iv, 1874, p. 91.

1874. "HERBERT". The Song of the Woodcock [Philohela minor]. <*Am. Sportsman*, iv, 1874, p. 92.

Sings at evening (see p. 19) and carries young by clasping it between the thighs (see p. 75).

1874. LAMBERTON, A. B. The American Snipe [Gallinago wilsoni]. <*Am. Sportsman*, iv, 1874, p. 99 and p. 115. See p. 155.

1874. MATHEW, G. F. Green Sandpiper [Totanus ochropus, in Great Britain]. <*Zoologist*, 2d ser., ix, 1874, p. 4159.

1874. PERSSE, A. Sabine's Snipe [Gallinago sabinii] in County Galway. <*Zoologist*, 2d ser., ix, 1874, p. 3836.

1874. ROBINSON, E. White Woodcock [Scolopax rusticola] in Ireland. <*Zoologist*, 2d ser., ix, 1874, p. 3915.

1874. ROBERTS, G., EDSON, —, *and* NEWMAN, E. Communications and Extracts concerning the Marsh Sandpiper (Totanus stagnatilis of Bechstein). <*Zoologist*, 2d ser., ix, 1874, pp. 4054-4056.

1874. RODD, E. H. Woodcocks [Scolopax rusticola] in the Scilly Isles. <*Zoologist*, 2d ser., ix, 1874, p. 4260.

1874. "SETTER." Woodcock [Philohela minor] carrying their young. <*Am. Sportsman*, iv, 1874, p. 10.

Philohela minor carrying its young on its back in flight; also in its claws; confirming observation of "E. H. L.", *ibid.*, iii, p. 379. See also p. 139.

1874. SHAW, J. Solitary Snipe [Gallinago major] in Lancashire. <*Zoologist*, 2d ser., ix, 1874, p. 3836.

From 'Field,' Oct. 4, 1873.

1874. "TIMBERDOODLE." A Woodcock [Philohela minor] Out of Place. < *Am. Sportsman*, iv, 1874, p. 28.

1874. "W. B." German Sporting Notes. < *Am. Sportsman*, iv, 1874, p. 75.
Philohela minor carries its young, holding them with its claws, between its legs. Compare iv, p. 10, and iii, p. 379.

1874. WHITAKER, J. Bartailed Godwit [Limosa lapponica] in Nottinghamshire. < *Zoologist*, 2d ser., ix, 1874, p. 4199.

1874. "WING NOTE". Ideas of a Georgia Sportsman [as to sounds made by Gallinago wilsoni, while descending]. < *Am. Sportsman*, iv, 1874, p. 155.

1874. WYMAN, L. [Habits of Actiturus bartramius in Massachusetts.] < *Forest and Stream*, i, Jan. 8, 1874, p. 342.

1875. "ALIQUIS." The Woodcock [Philohela minor] as a song bird. < *Forest and Stream*, iv, June 3, 1875, p. 262.

1875. ANON. Artifices of the Woodcock [Philohela minor]. < *Forest and Stream*, iv, April 22, 1875, p. 167. See also p. 215.

1875. ANON. [EDITORIAL.] Instinct in the Woodcock [Philohela minor]. < *Forest and Stream*, iv, June 10, 1875, p. 279.
Carrying young in its claws.

1875. ANON. [TILESTON, W. M.] Tame Snipe. < *Forest and Stream*, v, Sept. 9, 1875, p. 68.
Successful experiments in keeping Snipe in various parts of the world.

1875. ANON. [EDITORIAL.] The Woodcock [Philohela minor]. < *Rod and Gun*, vi, April 17, 1875, p. 40. See also p. 67.
Need of legislative protection. The volume contains frequent allusion to, and arguments for, this measure, from various correspondents.

1875. ANON. [EDITORIAL.] [Characteristics and pseudonyms of Tringa maculata.] < *Rod and Gun*, vi, April 17, 1875, p. 42.

1875. DE BANES, J. Habits of the Woodcock [Philohela minor]. < *Forest and Stream*, iv, March 25, 1875, p. 101.
Full biography, from observations in Western New York.

1875. "E. E. E." First Snipe [Gallinago wilsoni, at Elkton, Md.]. < *Rod and Gun*, vi, Apr. 3, 1875, p. 10.

1875. "E. R." Artifices of Woodcock [Philohela minor]. < *Forest and Stream*, iv, July 1, 1875, p. 326. See also p. 127, 215.

1875. COFFIN, C. E. Confidences of Woodcock [Philohela minor, on the nest]. < *Forest and Stream*, v, Sept. 9, 1875, p. 68. See also p. 4.

1875. "GEO. H. M." Traits of Woodcock [Philohela minor]. < *Forest and Stream*, iv, May 13, 1875, p. 215. See pp. 167, 215.

1875. GUNN, T. E. Solitary Snipe [Gallinago major] in Norfolk. < *Zoologist*, 2d ser., x, Oct., 1875, pp. 4665, 4666.

1875. GUNN, T. E. Spotted Redshank [Totanus fuscus] in Norfolk. < *Zoologist*, 2d ser., x, Oct., 1875, p. 4666.

1875. GURNEY, J. H., JR. Green Sandpiper [Totanus ochropus] at Northrepps. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4697.

1875. HODGKINSON, J. B. Brown Snipe near Southport. < *Zoologist*, 2d ser., x, Feb., 1875, p. 4341.

1875. INGERSOLL, E. Remarkable success in taming Woodcocks [Philohela minor]. < *Forest and Stream*, v, Dec. 2, 1875, p. 260.

1875. LINDEN, C. Preservation of Woodcock [Philohela minor]. < *Rod and Gun*, vi, May 1, 1875, p. 67. See also p. 40.
General natural history.

1875. "RECAPPER." [T. C. ABBOTT.] The American Woodcock [Philohela minor]. < *Forest and Stream*, iv, Apr. 1, 1875, p. 117.

1875. WEBSTER, F. S. Gallinago Wilsoni [at Troy, N. Y.]. < *Forest and Stream*, iv, Mar. 18, 1875, p. 85.

1875. WHITAKER, J. Curlew [Numenius arquatus] in Nottinghamshire. < *Zoologist*, 2d ser., x, Mar., 1875, p. 4382.

1875. [WILLARD, S. L.] The American Woodcock, Philohela minor. < *Oölogist*, i, 1875, p. 71.

1875. [WILLARD, S. L.] The Solitary Sandpiper. (Rhyacophilus solitarius.) < *Oölogist*, i, 1875, p. 45.

1876. ANON. Woodcock [Philohela minor] on her nest. < *Forest and Stream*, vi, May 25, 1876, p. 250, fig.

1876. BALFOUR, T. G. Whimbrel [Numenius phæopus] in Wiltshire. < *Zoologist*, 2d ser., xi, Nov., 1876, p. 5166.

1876. "B. L." Woodcock [Philohela minor] in the South. < *Rod and Gun*, viii, Sept. 16, 1876, p. 389.

1876. BOYES, F. Green Sandpipers [Totanus ochropus] near Beverley. < *Zoologist*, 2d ser., xi, Nov., 1876, p. 5168.

1876. BOYES, F. Woodcock [Scolopax rusticola] migrating in July. < *Zoologist*, 2d ser., xi, Nov., 1876, pp. 5166, 5167.

1876. BREWSTER, W. Occurrence of the Curlew Sandpiper [Tringa subarquata] in Massachusetts. < *Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, pp. 51, 52.

1876. COOPER, J. Curious Habit of the Common Sandpiper [Tringoides hypoleucus]. < *Zoologist*, 2d ser., xi, Oct., 1876, pp. 5125, 5126.

1876. CORDEAUX, J. Great Snipe [Gallinago major] in Perthshire. < *Zoologist*, 2d ser., xi, Nov., 1876, p. 5167.

1876. COUES, E. European Woodcock [Scolopax rusticola] Shot in Virginia. < *Forest and Stream*, vi, Apr. 27, 1876, p. 180.

This and the next title refer to the same instance.

1876. COUES, E. The European Woodcock [Scolopax rusticola] shot in Virginia. < *Am. Nat.*, x, No. 6, June, 1876, p. 372.

1876. COUES, E. The Woodcock (Philohela minor). < *Rod and Gun*, viii, July 8, 1876, p. 227, fig.

From his "Birds of the Northwest." See also p. 260.

1876. "CANONICUS." Nature and Habits of the Woodcock [Philohela minor]. < *Rod and Gun*, viii, May 20, 1876, p. 114, and May 27, 1876, p. 134.

1876. DRESSER, H. E. On a new Species of Broadbilled Sandpiper [Limicola sibirica]. < *P. Z. S.*, June 20, 1876, pp. 674, 675.

1876. GATCOMBE, J. Great Snipe [Gallinago major] in Devon. < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5126.

1876. GURNEY, J. H., JR. Dunlins [Tringa alpina] Inland. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4802.

1876. GURNEY, J. H., JR. Woodcock's [Scolopax rusticola] Mode of Carrying its Young. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4844.

1876. GURNEY, J. H., JR. Bartailed Godwit [Limosa lapponica]. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5046.

1876. GURNEY, J. H., JR. Woodcock [Scolopax rusticola] migrating in July. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5083.

1876. GURNEY, J. H., JR. The Redshank [Totanus calidris] at Northrepps. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5083.

1876. GURNEY, J. H., JR. Green Sandpiper [Totanus ochropus] at Northrepps. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5083.

1876. GURNEY, J. H., JR. Green Sandpiper [Totanus ochropus] at Northrepps. <*Zoologist*, 2d ser., xi, Oct., 1876, p. 5125.

1876. HARTING, J. E. Bartram's Sandpiper [Actiturus bartramius]. <*Rod and Gun*, viii, Apr. 29, 1876, p. 71.

From London *Field* of Mar. 25, 1876.

1876. KERRY, F. Knot [Tringa canutus] and Green Sandpiper [Totanus ochropus] at Aldeburgh. <*Zoologist*, 2d ser., xi, Sept., 1876, p. 5083.

1876. MATHEW, G. F. Bartailed Godwit [Limosa lapponica]. <*Zoologist*, 2d ser., xi, Jan., 1876, p. 4764.

1876. "REX." [S. J. MILLS.] Woodcock [Philohela minor]. <*Rod and Gun*, viii, July 22, 1876, p. 260.

Notes on spring voice of this species. See p. 22.

1876. RODD, E. H. Sabine's Snipe [Gallinago sabinii] near Penzance. <*Zoologist*, 2d ser., xi, Feb., 1876, pp. 4801, 4802.

1876. RODD, E. H. Note on Sabine's Snipe (Scolopax [Gallinago] Sabini). <*Zoologist*, 2d ser., xi, Nov., 1876, pp. 5142–5145.

On its specific validity.

1876. [SCOTT, W. E. D.] A Key to our Shore Birds.—II. <*Forest and Stream*, Aug. 10, 1876.

This second instalment of an analysis, for the use of sportsmen, of the North American *Limicolæ*, gives brief characters of all the *Scolopacidæ*.

1876. "SNIPE." Early Snipe. <*Rod and Gun*, vii, Feb. 5, 1876, p. 290.

Gallinago wilsoni (?) at Baltimore Jan. 16.

1877. ANON. Woodcock [Philohela minor]. <*Rod and Gun*, ix, Mar. 10, 1877, p. 360.

Its ability to endure much rigorous weather.

1877. B[RACKETT, A. E.] Jack Snipe in Colorado. <*Forest and Stream*, ix, Dec. 27, 1877, p. 397.

1877. "BOURGEOISE." Woodcock [Philohela minor] a la Bourgeoise. <*Forest and Stream*, viii, July 26, 1877, p. 421.

1877. [BREWER, T. M.] The Nesting of the Snipe [Gallinago wilsoni, in southern localities]. <*Forest and Stream*, ix, Dec. 27, 1877, p. 397. See pp. 285, 326.

1877. BREWER, T. M. The Willet [Symphemia semipalmata, breeding along the Atlantic coast of the United States]. <*Forest and Stream*, ix, Sept. 27, 1877, p. 144.

1877. HARTING, J. E. [Remarks on Exhibition of a variety of the common Snipe, Gallinago media.] <*P. Z. S.*, June 19, 1877, p. 533.

Showing the so-called *G. sabinii* to be a melanism of this species.

1877. HUIDEKOPER, E. Breeding of Wilson Snipe [Gallinago wilsoni, at Meadville, Pa.]. <*Forest and Stream*, ix, Nov. 29, 1877, p. 326. See p. 285.

1877. HOYT, R. D. The Woodcock [Philohela minor, breeding] in Florida. <*Forest and Stream*, viii, Apr. 5, 1877, p. 129. See p. 82.

1877. [MERRIAM, C. H.] Breeding of Wilson Snipe [Gallinago wilsoni]. <*Forest and Stream*, ix, Nov. 5, 1877, p. 285. See p. 326.

Report of its breeding in Connecticut; from his "Review of the Birds of Connecticut," 1877, p. 105.

1877. SEVERANCE, J. A. Nomenclature [of Gallinago wilsoni corrected]. <*Forest and Stream*, viii, Apr. 5, 1877, p. 128.

1878. ABBOTT, C. C. The English Snipe [Gallinago wilsoni] in New Jersey. <*The Country*, i, Jan. 26, 1878, p. 180.

Breeding at Trenton, N. J.; specimens supposed to have been unable, through injury, to go northward; note appended by W. E. D. Scott, doubting this explanation.

1878. "ANO." Early Birds. <*Forest and Stream*, x, Apr. 25, 1878, p. 216.

Woodcock breeding at Painesville, Ohio, Apr. 7.

1878. [APPLETON, G. L.] A Large Woodcock [weight nine ounces]. < *Forest and Stream*, x, Mar. 14, 1878, p. 95.

It is not impossible that this and some similar records of unusually large Woodcock shot in the United States have actual reference to the European *Scolopax rusticola*.

1878. BREWER, T. M. The Stilt Sandpiper (Micropalama himantopus). < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, p. 148.

Its frequent occurrence on Long Island, according to observations of G. N. Lawrence.

1878. BREWER, T. M. Eggs of the Solitary Sandpiper (Rhyacophilus solitarius Bp.). < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 197.

Important as being doubtless the first description of an authentic egg of this species. The supposed egg had occasionally been reported before, but never with positive identification, that of *Tringoides macularius* or *Ægialitis vocifera* having been usually mistaken for it.

1878. BREWER, T. M. Notes on the Occurrence of Micropalama himantopus in New England. < *Proc. Bost. Soc. Nat. Hist.*, xix, for Oct. 3, 1877, pub. Jan. Feb., 1878, pp. 252–256.

This is quite an extensive paper, giving the particulars of various occurrences.

1878. BROWN, N. C. The Stilt Sandpiper (Micropalama himantopus) at Portland, Maine. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 102.

1878. [CHUBB, J.] Early Snipe [Gallinago wilsoni, at Cleveland, Ohio]. < *Forest and Stream*, x, Mar. 28, 1878, p. 135.

1878. HEAD, J. F. Breeding of the Woodcock [Philohela minor] in Georgia. < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, p. 151.

Communicated by E. C[oues]; comment by W. Brewster on its breeding in Florida.

1878. "J. M. W." Woodcock [Philohela minor] killed by Telegraph Wires. < *Familiar Sci. and Fanciers' Journ.*, v, No. 5, May, 1878, p. 94.

1878. [WILLARD, S. L.] "Tip-up" [Tringoides macularius]. < *The Oölogist*, iv, No. 3, May, 1878, pp. 22, 23.

Notice of its habits, mostly quoted from Coues's "Birds of the Northwest."

1878. WOOD-MASON, J. On the Structure and Development of the Trachea in the Indian Painted Snipe (Rhynchæa capensis). < *P. Z. S.*, June 18, 1878, pp. 745–751, figg. 1, 2, pl. xlvii.

Peculiarly convoluted trachea in the ♀. This sex offers reversal of secondary sexual characters and instincts—being larger and more richly colored than the ♂, having the trachea tortuous instead of simple, deputing the duty of incubation to the ♂, and doing the courting business herself. The parts in mention are figured.

1879. BREWER, T. M. The Eggs of the Curlew Sandpiper (Tringa subarquata). < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, p. 190.

Doubtless a mistake. In *Ibis*, 1879, p. 375, Dr. Brewer makes the same statements. H. W. Feilden criticizes the statements in *Ibis*, 1879, p. 468; and the case is reviewed at length by J. E. Harting, *Zool.*, Mar., 1880, p. 104. The bird may have been *Tringa canutus* or *Phalaropus fulicarius*. Authentic eggs of *Tringa subarquata* continue to be unknown.

1879. COUES, E. Letters on Ornithology. No. 19.—The Curlews [Numenius spp.] of North America. < *The Chicago Field*, Apr. 26, 1879.

Matter rearranged from accounts of three species in "Birds of the Northwest."

1879. COUES, E. Letters on Ornithology. No. 25.—The Solitary Tattler; Wood Tattler. Totanus Solitarius. < *The Chicago Field*, June 21, 1879.

From "Birds of the Northwest."

1879. COUES, E. Letters on Ornithology. No. 26.—Semipalmated Tattler, Willet, Stone Snipe. (Totanus Semipalmatus.) < *The Chicago Field*, June 28, 1879.

From "Birds of the Northwest."

1879. COUES, E. Letters on Ornithology. No. 27.—Bartramian Sandpiper or Tattler; Upland Plover. Actiturus Bartramius. < *The Chicago Field*, July 5, 1879.

From "Birds of the Northwest."

1879. COUES, E. Letters on Ornithology. No. 28.—The Buff-Breasted Sandpiper. Tryngites Rufescens. < *The Chicago Field*, July 12, 1879, p. 348.

From "Birds of the Northwest."

1879. COUES, E. Letters on Ornithology. No. 29.—The Great Marbled Godwit. Limosa Fedoa. < *The Chicago Field,* July 19, 1879.

From "Birds of the Northwest."

1879. DEANE, R. Additional Captures of the Curlew Sandpiper [Tringa subarquata] in New England. < *Bull. Nutt. Ornith. Club,* iv, No. 2, Apr., 1879, p. 124.

Adding two to the three previously recorded.

1879. DWIGHT, J., JR. The Stilt Sandpiper (Micropalama himantopus) on the New Jersey Coast. < *Bull. Nutt. Ornith. Club,* iv, No. 1, Jan., 1879, p. 63.

1879. EDITORIAL. [F. SATTERTHWAITE.] A Plea for Woodcock [Philohela minor]. < *Forest and Stream,* xiii, Aug. 14, 1879, p. 550.

Against the shooting of this species during the summer months.

1879. ELLZEY, M. G., *and* SQUIRE, G. R. Do Woodcock [Philohela minor] Breed Twice a Year? < *Forest and Stream,* xii, July 10, 1879, p. 444.

Letters confirming the position taken by Geo. Bird Grinnell, that Woodcock do usually, in the Middle States, rear two broods each season.

1879. [GRINNELL, G. B.] Woodcock [Philohela minor] Breed Twice. < *Forest and Stream,* xii, May 1, 1879, p. 250.

Defence of statement that Woodcock usually rear two broods in a season, with some of the observations on which this assertion is based.

1879. [HARTING, J. E.] On some little-known Habits of the Woodcock [Scolopax rusticola]. < *Zoologist,* 3d ser., iii, Nov., 1879, pp. 433–440, pl. iii.

With special reference to the transportation of the young by the parent. The plate figures the parent flying with the young in her feet, away from the body, as a hawk would carry its prey. The text bears this out, but other passages of the same article speak of the young being pressed to the parent's body, clasped between her legs. See 1874, "A. W."

1879. J. C. H. Breeding of Woodcock [Philohela minor]. < *Forest and Stream,* xii, May 22, 1879, p. 307.

Notice of the killing, on the wing, of four young woodcock, Mar. 31, 1878, at Fayetteville, N. C. (By typographical error, as noticed in the next issue of *Forest and Stream,* the note above given was dated Fayetteville, N. Y.)

1879. "PORTSA." Are Woodcock [Philohela minor] Nocturnal? < *Forest and Stream,* xi, Jan. 23, 1879, p. 502.

1879. SAMUELS, E. A. Wilson's Snipe. Gallinago Wilsonii—(Bonaparte.) < *Town and Country* (monthly newspaper of Boston, Mass.), i, No. 4, Apr., 1879, cut.

An extended notice of the habits of this species, with sporting anecdote. Being No. 3 of a series of papers entitled "Our Game Birds."

1879. SAMUELS, E. A. The Woodcock. Philohela minor. < *Town and Country* (monthly newspaper of Boston, Mass.), i, No. 5, May, 1879, cut.

Popular biographical sketch.

1879. S[TERLING], J. W. The Second Brood of Woodcock [Philohela minor]. < *Forest and Stream,* xiii, Oct. 2, 1879, p. 684.

1879. YOUNG, C. H. More White Woodcock [Philohela minor]. < *Forest and Stream,* Apr. 10, 1879, p. 185.

Note.

In *Ibis,* Oct., 1879, p. 453, in an article not citable under *Scolopacidæ,* as it refers to various other birds, H. T. Wharton has shown that the proper specific name of the European Woodcock is *rusticula,* not *rusticola,* though the latter is almost invariably used. Though aware of this before these pages were printed, I preferred to use the latter in my brackets, as being that which the authors themselves of the various papers did or would employ.

Recurvirostridæ.

1835. Du Bus de Ghisignies, V. B. Description d'un nouveau genre d'Oiseaux de l'ordre des Échassiers [Leptorhynchus pectoralis, sp. n.]. < *Bull. Acad. Brux.*, ii, 1835, pp. 419, 420, pl.

Pas vue moi-même: le titre tiré de Carus et Englemann.

1835. Du Bus de Ghisignies, V. B. Description d'un nouveau genre d'Oiseaux de l'ordre des Échassiers [Leptorhynchus pectoralis]. < *L'Institut*, iii, No. 103, 1835, p. 138.

Pas vue moi-même: le titre tiré de Carus et Englemann.

1835. Dubus [de Ghisignies, V. B.] Leptorhynque. Leptorhynchus. Dubus. Nouveau genre d'Oiseaux de l'ordre des Échassiers. < *Guér. Mag. de Zool.*, 5e année, 1835, classe ii, notice xlv, pl. xlv.

Leptorhynchus pectoralis, nuper g. sp. n., pl. 45.—Mémoire presenté à l'Acad. Roy. de Bruxelles, séance du 17 janv. 1835.

1835. Dumortier, —. [Rapport sur le mémoire intitulé: Description d'un nouveau genre d'Oiseaux de l'ordre des Échassiers (Leptorhynchus pectoralis).] < *L'Institut*, ii, 1835, pp. 72–74.

Pas vue moi-même.

1841. Gould, J. [Description of a New Species of Himantopus (Novæ Zelandiæ) from New Zealand.] < *P. Z. S.*, ix, 1841, p. 8.

1843. Fisher, W. R. Note on the occurrence of the Avocet [Recurvirostra avocetta] near Yarmouth. < *Zoologist*, i, 1843, p. 148.

1844. Du Bus [de Ghisignies, V. B.] Neuer Sumpfvogel, Leptorhynchus pectoralis aus Neuholland. < *Oken's Isis*, Bd. xxxvii, 1844, pp. 330, 331.

Aus d. *Bull. Acad. Roy. Bruxel.*, Bd. ii, 1835, *q. v.*

1844. Mansell, T. Note on the occurrence of the Stilt Plover [Himantopus leucocephalus?] in New South Wales. < *Zoologist*, ii, 1844, p. 454.

1845. Ross, F. W. L. Beak and Legs of the Avocet [Recurvirostra avocetta]. < *Zoologist*, iii, 1845, p. 1191.

1847. Rodd, E. H. Occurrence of the Avocet [Recurvirostra avocetta] at the Land's End. < *Zoologist*, v, 1847, p. 1910.

1849. Benson, H. Occurrence of the Avocet [Recurvirostra avocetta] near Ramsgate. < *Zoologist*, vii, 1849, p. 2455.

1849. Duff, J. Occurrence of the Avocet (Recurvirostra avocetta) at the Tees Mouth. < *Zoologist*, vii, 1849, p. 2591.

1849. Ellman, J. B. Occurrence of the Avocet [Recurvirostra avocetta] in Romney Marsh. < *Zoologist*, vii, 1849, p. 2455.

1849. Ellman, J. B. Occurrence of the Avocet (Avocetta recurvirostra) in Romney Marsh. < *Zoologist*, vii, 1849, pp. 2528, 2529.

1849. Gurney, J. H. Occurrence of the Avocet (Avocetta recurvirostra) near Lynn. < *Zoologist*, vii, 1849, p. 2455.

1851. Harper, J. O. Occurrence of the Avocet (Recurvirostra Avocetta) at Sandwich, in Kent. < *Zoologist*, ix, 1851, p. 2989.

1851. Harper, J. O. Occurrence of the Avocet (Recurvirostra Avocetta) at Yarmouth. < *Zoologist*, ix, 1851, p. 3208.

1851. Selys-Longchamps, E. de. Note sur la famille des Recurvirostridées. < *Bull. de l'Acad. Roy. de Bruxelles*, xviii, i, 1851, pp. 5–15.

Pas vue moi-même: le titre tiré de la Bibl. de Carus et Engelmann.

1851. SELYS-LONGCHAMPS, E. DE. Note sur la famille des Recurvirostridées. <*L'Institut*, xix, No. 913, 1851, p. 211.

Pas vue moi-même.

1852. IRBY, L. H. Occurrence of the Avocet [Recurvirostra avocetta] at Yarmouth. <*Zoologist*, x, 1852, p. 3504.

1856. FOOTIT, W. F. Occurrence of the Avocet [Recurvirostra avocetta] near Newark. <*Zoologist*, xiv, 1856, pp. 5251, 5252.

1856. NEWMAN, E. Occurrence of the Stilt Plover (Himantopus melanopterus) at Bosham, in Sussex. <*Zoologist*, xiv, 1856, p. 4946.

1856. WOLLEY, G. Occurrence of the Avocet [Recurvirostra avocetta] in Nottinghamshire. <*Zoologist*, xiv, 1856, p. 5280.

1857. MATTHEWS, H. Occurrence of the Avocet (Recurvirostra avocetta) near Newark. <*Zoologist*, xv, 1857, pp. 5364, 5365.

1858. GARDNER, J. Occurrence of the Avocet (Recurvirostra avocetta) in Kent. <*Zoologist*, xvi, 1858, p. 5921.

1859. JÄGER, G. Herr Professor Dr. G. Jäger bespricht die Lebensweise eines Exemplares von Recurvirostra avocetta. <*Verh. d. k.-k. zool.-bot. Ges. Wien*, ix, 1859, pp. 98–101.

1859. KNOX, A. E. On the Habits of the Black-winged Stilt [Himantopus melanopterus], as observed on its occurrence in Sussex. <*Ibis*, i, 1859, pp. 395–397.

1860. KNOX, A. E. On the Habits of the Black-winged Stilt [Himantopus melanopterus], as observed on its occurrence in Sussex. <*Zoologist*, xviii, 1860, pp. 6979, 6980.

From *Ibis*, i, 1859, pp, 395–397.

1864. JEFFREY, W., JR. Avocet [Recurvirostra avocetta] near Chichester. <*Zoologist*, xxii, 1864, p. 9211.

1867. HACKETTS, W. A. Avocet [Recurvirostra avocetta] in the County Cork. <*Zoologist*, 2d ser., ii, 1867, p. 635.

From the 'Field,' Jan. 12.

1867. RAMSEY, E. P. Note on the Eggs of the Australian Stilt-Plover (Himantopus leucocephalus). <*P. Z. S.*, xxxv, 1867, p. 600.

1867. THOMPSON, W. Occurrence of the Avocet [Recurvirostra avocetta] near Weymouth. <*Zoologist*, 2d ser., ii, 1867, p. 759.

1868. TRISTRAM, H. B. [Questions distinctness of Recurvirostra sinensis from R. avocetta.] <*Ibis*, 2d ser., iv, 1868, p. 133.

1869. HART, W., *and* SON. Avocet [Recurvirostra avocetta] at Portsmouth [England]. <*Zoologist*, 2d ser., iv, 1869, p. 1562.

1870. FEILDEN, H. W. [Additional (Ibis, 1870, 145) information on the breeding of Himantopus candidus.] <*Ibis*, 2d ser., vi, 1870, p. 295.

1870. HUME, A. [O.] [On the breeding, nest, and eggs of the Indian Black-winged Stilt, Himantopus candidus.] <*Ibis*, 2d ser., vi, 1870, pp. 145–147.

1871. GATCOMBE, J. Avocet [Recurvirostra avocetta] in Cornwall. <*Zoologist*, 2d ser., vi, 1871, p. 2810.

1874. HARTING, J. E. On rare or little-known Limicolæ. [Part VI.] <*Ibis*, 3d ser., iv, 1874, pp. 241–261, pl. ix.

Treats very fully of the species of *Recurvirostra*. The pl. represents *R. andina*.

1875. BULLER, W. L. On the Genus Himantopus in New Zealand. <*Trans. and Proc. New Zealand Inst. for* 1874, vii, 1875, pp. 220–224.

Treats of *HH. leucocephalus*, *novæ-zealandiæ*, and *albicollis*, the latter sp. n., p. 224.

1875. GURNEY, J. H., JR. Plumage of the Stilt [Himantopus candidus]. <*Zoologist*, 2d ser., x, Nov., 1875, p. 4697.

1876. WARREN, R. Avocet [Recurvirostra avocetta] in Ireland. <*Zoologist*, 2d ser., xi, Jan., 1876, pp. 4764, 4765.

Phalaropodidæ.

1758. Edwards, G. An Account of a new-discovered Species of the Snipe or Tringa [*i. e.*, Phalaropus fulicarius]. < *Philos. Trans. for* 1757, l, pt. i, 1758, pp. 255–257, pl. vi.

"Grey Coot-footed Tringa"=*Phalaropus fulicarius* of later authors. The plate also illustrates the bill of the Red-necked Phalarope, *Lobipes hyperboreus* of systematists.

1807. Simmonds, T. W. Observations respecting a Species of Phalarope, and some other rare British Birds. < *Trans. Linn. Soc.*, viii, 1807, pp. 264–269.

Phalaropus williamsii, p. 264, sp. n. [It is *Lobipes hyperboreus.*]

1832. Allis, T. Grey Phalarope [Phalaropus fulicarius, near York, England]. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 589.

1832. Couch, J. The Grey Phalarope [Phalaropus fulicarius, in Great Britain]. *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 729, 730.

1832. Jordan, W. R. Notes on the Gray Phalarope (Tringa lobata, Lin. [Phalaropus fulicarius]). < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 282.

1833. Scouler, J. Grey Phalarope [Phalaropus fulicarius, in Scotland]. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 515.

1846. Cooper, J. Occurrence of the Gray Phalarope [Phalaropus fulicarius] near Preston. < *Zoologist*, iv, 1846, p. 1552.

1846. Gurney, J. H. Occurrence of the Red-necked Phalarope [Lobipes hyperboreus] in Norfolk. < *Zoologist*, iv, 1846, p. 1552.

1846. Murch, E. Occurrence of the Gray Phalarope [Phalaropus fulicarius] near Honiton. < *Zoologist*, iv, 1846, p. 1552.

1846. Rodd, E. H. Occurrence of the Gray Phalarope [Phalaropus fulicarius] near Penzance. < *Zoologist*, iv, 1846, p. 1552.

1847. Beadles, J. N. Occurrence of the Gray Phalarope [Phalaropus fulicarius] at Mitcheldean. < *Zoologist*, v, 1847, p. 1697.

1847. Goatley, T. Occurrence of the Gray Phalarope (P. lobatus [Phalaropus fulicarius]), near Chipping Norton. < *Zoologist*, v, 1847, p. 1640.

1847. Hunter, C. B. Occurrence of the Gray Phalarope [Phalaropus fulicarius] at Wretham. < *Zoologist*, v, 1847, p. 1640.

1850. Lewins, R. Occurrence of the Grey Phalarope (Phalaropus lobatus [fulicarius]) in Northumberland. < *Zoologist*, viii, 1850, p. 2853.

1851. Ellman, J. B. Occurrence of the Red-necked Phalarope (Phalaropus [Lobipes] hyperboreus) at Lewes. < *Zoologist*, ix, 1851, p. 3035.

1852. Gurney, S., Jr. Occurrence of the Gray Phalarope (Phalaropus platyrrhynchus [fulicarius]) at Carshalton. < *Zoologist*, x, 1852, p. 3331.

1853. Hussey, A. Occurrence of the Red-necked Phalarope [Lobipes hyperboreus] at Rottingdean. < *Zoologist*, xi, 1853, pp. 4096, 4097.

1854. Gloger, C. W. L. Das eigenthümliche Brüt-Verhaltniss der Wassertreter (Phalaropus) und seine Analogie. < *J. f. O.*, ii, 1854, pp. 89–91.

1854. Rodd, E. H. Occurrence of the Red-necked Phalarope [Lobipes hyperboreus] near Penzance. < *Zoologist*, xii, 1854, p. 4526.

1854. Milner, W. M. E. Red-necked Phalarope [Lobipes hyperboreus] killed near York. < *Zoologist*, xii, 1854, p. 4441.

1860. **Dunn, J.** Occurrence of the Gray Phalarope [Phalaropus fulicarius] in Orkney. < *Zoologist*, xviii, 1860, p. 6812.

1860. **Rodd, E. H.** Occurrence of the Red Phalarope [Phalaropus fulicarius] at Scilly. < *Zoologist*, xviii, 1860, p. 7236.

1860. **Williams, D.** Occurrence of the Gray Phalarope (Phalaropus platyrhynchus [fulicarius]) at Swansea. < *Zoologist*, xviii, 1860, p. 6891.

1862. **Rogers, H.** Occurrence of the Gray Phalarope [Phalaropus fulicarius] in the Isle of Wight. < *Zoologist*, xx, 1862, p. 8283.

1863. **Dutton, J.** The Gray Phalarope [Phalaropus fulicarius] at Brighton. < *Zoologist*, xxi, 1863, p. 8331.

1863. **Jeffery, W., Jr.** The Rednecked Phalarope [Lobipes hyperboreus] near Chichester. < *Zoologist*, xxi, 1863, p. 8828.

1863. **Kerr, J.** Gray Phalarope [Phalaropus fulicarius] near Greenock. < *Zoologist* xxi, 1863, p. 8828.

1863. **Stevenson, H.** The Gray Phalarope (Phalaropus platyrhynchus [fulicarius]) in Norfolk. < *Zoologist*, xxi, 1863, p. 8331.

1864. **Osborne, H., Jr.** Gray Phalarope [Phalaropus fulicarius] in Caithness. < *Zoologist*, xxii, 1864, p. 8890.

1866. **Blake-Knox, H.** Gray Phalarope [Phalaropus fulicarius] in Dublin Bay. < *Zoologist*, 2d ser., i, 1866, pp. 500, 501.

1866. **Dutton, J.** Gray Phalarope [Phalaropus fulicarius] at Eastbourne. < *Zoologist*, 2d ser., i, 1866, p. 499.

1866. **Dutton, J.** Gray Phalarope [Phalaropus fulicarius] at Eastbourne, &c. < *Zoologist*, 2d ser., i, 1866, p. 525.

1866. **Hesse, B.** Gray Phalarope [Phalaropus fulicarius] in Hackney Marshes. < *Zoologist*, 2d ser., i, 1866, p. 499.

1866. **Kirby, H. T. M.** Gray Phalarope [Phalaropus fulicarius] at Mayfield. < *Zoologist*, 2d ser., i, 1866, p. 499.

1866. **Mathew, M. A.** Gray Phalarope [Phalaropus fulicarius] at Weston-super-Mare and at Budleigh Salterton. < *Zoologist*, 2d ser., i, 1866, pp. 499, 500.

1866. **Rodd, E. H.** Red Lobefoot [Rednecked Phalarope] [Lobipes hyperboreus] at Scilly. < *Zoologist*, 2d ser., i, 1866, p. 501.

Brackets in original title around the words "Rednecked Phalarope".

1867. **Gunn, T. E.** The Gray Phalarope [Phalaropus fulicarius] in Norfolk. < *Zoologist*, 2d ser., ii, 1867, p. 1016.

1867. **Gurney, J. H., Jr.** A Summary of the Occurrences [about 250 specimens] of the Grey Phalarope [Phalaropus fulicarius] in Great Britain during the Autumn [Aug. 20–Oct. 8] of 1866. By J. H. Gurney, jun. London: 1867. 8vo. pamph. pp. 24, map.

Not seen.—Cf. *Zoologist*, s. s., pp. 917–919; *Ibis*, 1868, p. 101.

1867. **Hawker, T. A.** Gray Phalarope [Phalaropus fulicarius] at Shoreham. < *Zoologist*, 2d ser., ii, 1867, pp. 561, 562.

1867. **Mathew, M. A.** Gray Phalarope [Phalaropus fulicarius] at Barnstaple. < *Zoologist*, 2d ser., ii, 1867, p. 562.

1868. **Gunn, T. E.** Rednecked Phalarope [Lobipes hyperboreus] in Norfolk. < *Zoologist*, 2d ser., iii, 1868, p. 1482.

1869. **Gatcombe, J.** Rednecked Phalarope [Lobipes hyperboreus] in the Neighbourhood of Plymouth. < *Zoologist*, 2d ser., iv, 1869, p. 1920.

1869. **Preston, T. A.** Rednecked Phalarope [Lobipes hyperboreus] at Marlborough. < *Zoologist*, 2d ser., iv, 1869, p. 1951.

1869. WONFOR, T. W. Gray Phalarope [Phalaropus fulicarius] in Sussex. < *Zoologist*, 2d ser., iv, 1869, p. 1920.

1870. BLAKE-KNOX, H. Gray Phalaropes [Phalaropus fulicarius] in County Dublin. < *Zoologist*, 2d ser., v, 1870, p. 2410.

1870. BROWNE, A. M. Gray Phalarope [Phalaropus fulicarius] in Wales. < *Zoologist*, 2d ser., v, 1870, p. 2410.

1870. GOATLEY, T. H. Gray Phalarope [Phalaropus fulicarius] near Southampton. < *Zoologist*, 2d ser., v, 1870, p. 2385.

1870. HARTING, J. E. On the Immigration of the Gray Phalarope (Phalaropus fulicarius) and the Recent Occurrence of this Species in Sussex. < *Zoologist*, 2d ser., v, 1870, pp. 1972–1975.

Extracted from 'The Field' of Nov. 13, 1869.

1870. MATHEW, M. A. Gray Phalaropes [Phalaropus fulicarius] in North Devon: Moulting of Birds. < *Zoologist*, 2d ser., v, 1870, pp. 2385, 2386.

1870. MATHEW, M. A. Abundance of the Gray Phalarope [Phalaropus fulicarius]. < *Zoologist*, 2d ser., v, 1870, p. 2410.

1870. SMITH, CECIL. Gray Phalaropes [Phalaropus fulicarius] in Somerset. < *Zoologist*, 2d ser., v, 1870, p. 2410.

1870. SMITH, CECIL. Gray Phalarope [Phalaropus fulicarius] at Bishops Lydeard. < *Zoologist*, 2d ser., v, 1870, p. 2385.

1871. BALKWILL, F. H. Phalaropes [Phalaropus ———] in Plymouth Sound. < *Zoologist*, 2d ser., vi, 1871, pp. 2442, 2443.

1871. BRYDGES, H. J. J. Gray Phalarope [Phalaropus fulicarius] at Boultibrook. < *Zoologist*, 2d ser., vi, 1871, p. 2852.

1871. SMITH, CECIL. Bird-batting. < *Zoologist*, 2d ser., vi, 1871, p. 2438.

Capture of *Phalaropus fulicarius.*

1871. SMITH, CECIL. Gray Phalarope [Phalaropus fulicarius] near Taunton. < *Zoologist*, 2d ser., vi, 1871, p. 2442.

1871. STUBBS, C. E. Gray Phalarope [Phalaropus fulicarius] near Henley-on-Thames. < *Zoologist*, 2d ser., vi, 1871, p. 2442.

1873. BOYES, F. Rednecked Phalarope [Lobipes hyperboreus] in East Yorkshire. < *Zoologist*, 2d ser., viii, 1873, p. 3371.

1873. CORBIN, G. B. Gray Phalarope [Phalaropus fulicarius, on the Hampshire coast] and Pike. < *Zoologist*, 2d ser., viii, 1873, p. 3492.

1873. MATHEW, M. A. Gray Phalarope [Phalaropus fulicarius] in Winter Plumage. < *Zoologist*, 2d ser., viii, 1873, p. 3454.

1874. NORGATE, F. Rednecked Phalarope [Lobipes hyperboreus] at Salthouse, Norfolk. < *Zoologist*, 2d ser., ix, 1874, p. 4159.

1874. CLARK-KENNEDY, A. J. Gray Phalarope [Phalaropus fulicarius] in Cheshire. < *Zoologist*, 2d ser., ix, 1874, p. 4239.

1874. CLOGG, S. Gray Phalarope [Phalaropus fulicarius] in Cornwall. < *Zoologist*, 2d ser., ix, 1874, p. 4239.

1875. WHITAKER, J. Gray Phalarope [Phalaropus fulicarius] in Nottinghamshire. < *Zoologist*, 2d ser., x, Feb., 1875, p. 4342.

1876. A[LLEN], J. A. Field and Forest. < *Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, p. 71.

Notice of this periodical, Vol. II, No. 1, the only ornithological article it contains being on *Steganopus wilsoni.* See 1876, KUMLEIN, A. L.

1876. GATCOMBE, J. Early Occurrence of the Gray Phalarope [Phalaropus fulicarius] in Devon. < *Zoologist*, 2d ser., xi, Sept., 1876, pp. 5083, 5084.

1876. Kumlein, A. L. On the Habits of Steganopus wilsoni. < *Field and Forest*, ii, No. 1, July, 1876, pp. 11, 12.

1876. Nicholls, R. P. Gray Pharalope [Phalaropus fulicarius] near Kingsbridge. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4802.

1877. Nelson, E. W. A Contribution to the Biography of Wilson's Phalarope [Steganopus wilsoni]. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, pp. 38–43.

Very full on its habits, especially on its breeding.

1878. Coues, E. The Northern Phalarope [Lobipes hyperboreus] in North Carolina. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, pp. 40, 41.

1878. Murdoch, J. Phalarope,—An Etymological Blunder. < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, pp. 150, 151.

Contends that the word should be written *Phalaridopus*, being from φαλαρίς, gen. -ίδος, "a coot", and ποῦς, "foot", not the adj. φαλαρὸς, "white", as "Phalaropus" would seem to indicate. "Nevertheless," as the writer, who has well taken his point, continues, "the name has served so long as a distinguishing mark of the genus, that it would be by no means advisable to attempt to make an exchange for the etymologically correct form"; especially as the form "Phalaropus" represents no very great degree of contraction. Moreover, as the writer does not state, φαλαρὶς, a coot, and φαλαρὸς, bright, white, shining, or otherwise conspicuous, are etymologically the same, the former substantive being derived from the latter adjective and having been applied to the bird because of its conspicuously colored bill; there being this additional reason for not insisting upon the change. Brisson certainly invented "Phalaropus" to mean "coot-footed," but the φάλαρα of the Greeks were any ornaments with which a thing might be furnished, as the gems of a tiara, the studs of a helmet, the caparisons of a horse, etc.; and "Phalaropus" is therefore not so far out of the way after all, for a bird whose feet are remarkably "ornamented" or appendaged.

1878. Williston, S. W. On the adult male plumage of Wilson's Phalarope. (Steganopus Wilsoni Sab.) < *Trans. Kansas Acad. Science for* 1877–8, vi, 1878, p. 39.

"What has hitherto been considered the young plumage of this bird, has been confounded with [that of] the adult male." Description follows, with other remarks.

Heliornithidæ.

1840. Brandt, J. F. Einige Bemerkungen über Podoa und ihr Verhältniss zu Fulica, Podiceps und den Steganopoden. < *Mém. de l'Acad. St.-Pétersb.*, vi sér., v tome, ii pte., *Sc. Nat.*, iii, 1840, pp. 197–202, pll. xi, xii.

A subtitle, being the third part of his series entitled: Beiträge zur Kenntniss der Naturg. Vögel u. s. w.—*Podoa* is associated with *Fulica*, in the order *Natatores*.

1848. Gray, G. R. Description of a new species of Podica [P. personata]. < *P. Z. S.*, xvi, 1848, p. 90.

1849. Gray, G. R. Description of a new species of Podica [P. personata]. < *Ann. Mag. Nat. Hist.*, 2d ser., iii, 1849, pp. 311, 312.

From *P. Z. S.*, June 13, 1848, p, 90.

1861. Giebel, C. G. Ueber Podoa surinamensis. < *Zeitsch. f. d. gesammt. Naturwiss.*, xviii, 1861, pp. 424––.

Nicht mir selbst zugänglich.—Enthaltend anatomisches.

1867. Schlegel, H. Urinatores < *Mus. Hist. Nat. Pays-Bas*, 9e livr., avril 1867, pp. 1–52.

This group, as made up by the author, consists of the five families *Sphenisciadæ*, *Alcidæ*, *Colymbidæ*, *Podicipidæ*, and *Heliornithidæ*, of three of which only a single genus is admitted. *Spheniscus*, 12 species.

In the *Alcidæ*, with 3 genera, are treated of *Alca*, 9 spp.; *Simorhynchus*, 6 spp.; *Lunda*, 3 spp. *Colymbus*, with 3 spp. *Podiceps*, with 12 spp. *Heliornis*, with 3 spp.

Parridæ.

1832. GEOFFROY ST.-HILAIRE, ISID. Jacana, Parra. Lin. < *Guér. Mag. de Zool.*, 2e année, 1832, classe ii, notice vi, pl. vi.

Parra albinuca [sic], pl. vi, sp. n.; Madagascar. [*Metopodius.*]

1856. SCLATER, P. L. On the species of the American genus Parra. < *P. Z. S.*, xxiv, 1856, pp. 282, 283.

The American birds of the genus *Parra*, with their Old World representatives of the genera *Metopodius*, *Hydralector*, and *Hydrophasianus*, are considered to constitute a natural group related to the *Rallidæ*, but remarkable for the extreme elongation of the toes. The article is a synopsis of five spp., with synonymy, diagnosis, and habitat: 1, *P. jacana*, L. 2, *P. intermedia*, Bp., sp. n., p. 282, Venezuela. 3, *P. melanopygia*, sp. n., p. 283, New Grenada. 4, *P. hypomelæna*, Gr. & Mitch. 5, *P. gymnostoma*, Wagl.

1857. SCLATER, P. L. On the Species of the American genus Parra. < *Ann. Mag. Nat. Hist.*, 2d ser., xix, 1857, pp. 410, 411.

From *P. Z. S.*, July 8, 1856, pp. 282, 283, *q. v.*

1864. GOULD, J. Description of the Egg of Parra gallinacea [Hydralector cristata]. < *P. Z. S.*, Dec. 13, 1864, p. 661.

1865. GOULD, J. Description of the Egg of Parra gallinacea [Hydralector cristata]. < *Ann. Mag. Nat. Hist.*, 3d ser., xvi, 1865, p. 70.

From *P. Z. S.*, Dec. 13, 1864, p. 661.

Rallidæ.

[Including *Gallinula, Fulica, Aramus, Notornis, Aphanapteryx,* etc.]

1717. LIMPRECHT, J. A. De Fulica recentiorum minore Gesneri. < *Ephem. Acad. Nat. Cur.*, Cent. 5 et 6, 1717, pp. 212–217.

Haud mihi cognitus: titulus e Caro et Engelm.

1721. HOFFMANN, M. De Fulica dissecta. < *Ephem. Acad. Nat. Cur.*, Cent. 9 et 10, 1721, App., pp. 469, 470.

Non mihi obvius: titulus e Caro et Engelm.

1734. PERRAULT, C. Description anatomique d'une Poule Sultane [Porphyrio]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. iii, 1734, pp. 50–57, pll. 11, 12.

1744–50. HASSELQUIST, F. Fulica. Linnaei Syst. Nat. p. 28. < *Acta Reg. Soc. Sci. Upsal.*, v, 1744–50, pp. 22, 23.

Haud mihi obvia.

1757. PERRAULT, C. Anatomische Beschreibung einer Sultanshenne [Porphyrio]. < *Abhandl. Königl. Französisch. Akad.*, ii, 1757, pp. 277– —.

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1865–66. Schlegel, H. Ralli < *Mus. Hist. Nat. Pays-Bas*, 7e livr., avril 1865, pp. 1–76; 8e livr., 1866, pp. 77–80.
This memoir includes representatives of several families of other authors. *Gruidæ*, 12 spp. in the single genus *Grus*; *Aramus*, 1 spp.; *Rallus*, 11 spp.; *Aramides*, 5; *Rallina*, 10; *Hypotænidia*, 4; *Crex*, 6; *Himantornis*, 1; *Porzana*, 14; *Gallinula*, 14; *Porphyrio*, 8; *Fulica*, 5; *Parra!*, 8; *Palamedea!*, 3; *Ocydromus*, 2; *Eurypyga!*, 1.

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1866. Legge, W. V. Moorhens [Gallinula chloropus] perching in Trees. < *Zoologist*, 2d ser., i, 1866, p. 145.

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1866. Reeks, H. Purple Waterhen [Porphyrio hyacinthinus] near Southampton. < *Zoologist*, 2d ser., i, 1866, p. 229.

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1867. Mackay, D. [Letter on Notornis, and other New Zealand Birds.] < *Ibis*, 2d ser., iii, 1867, pp. 144, 145.

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Pl. 10, *F. newtonii;* 11, *F. atra;* 12, *Porphyrio madagascarensis;* 13, *Ocydromus australis.* Cf. *Zool. Rec.*, iv, 1867, pp. 117, 118; *Ibis*, 1868, p. 482, note.

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1867. Sclater, P. L. [Gallinula pumila = G. minor = G. angulata.] < *Ibis*, 2d ser., iii, 1867, p. 254.

1868. Binnie, F. G. Scarcity of the Corn Crake [Crex pratensis, in Tadcastor]. < *Zoologist*, 2d ser., iii, 1868, p. 1459.

1868. Blake-Knox, H. Spotted Crake [Porzana maruetta] in the County Dublin. < *Zoologist*, 2d ser., iii, 1868, p. 1458.

1868. Frauenfeld, G. v. Auffindung einer bisher unbekannten Abbildung des Dronte und eines zweiten kurzflügeligen wahrscheinlich von den Maskarenen stammenden Vogels. < *J. f. O.*, xvi, 1868, pp. 138–140.
Aphanapteryx imperialis, g. sp. n.

1868. Frauenfeld, G. v. Herr Georg Ritter von Frauenfeld berichtete über die Auffindung einer bisher unbekannten Abbildung des Dronte und eines zweiten bisher unbeschriebenen flügellosen Vogels, wahrscheinlich von den Maskarenen. < *Verh. k.-k. zool.-bot. Ges. Wien*, xviii, 1868, p. 24.
Aphanapteryx imperialis.—The above is all there is of it.

1868. Frauenfeld, G. v. Neu aufgefundene Abbildung des Dronte und eines zweiten kurzflügeligen Vogels, wahrscheinlich des Poule rouge au bec de Bécasse der Maskarenen in der Privatbibliothek S. M. des verstorbenen Kaisers Franz. Erläutert von George Ritter von Frauenfeld. Mit 4 Tafeln. Wien: 1868. imp. fol. pp. 17.
Cf. especially *Ibis*, 1868, pp. 480–482; F. C. Noll, *Zool. Gart.*, 1868, p. 282; A. Milne-Edwards, *Ann. Sci. Nat. Zool.*, 5e sér., x, pp. 325–346; *Ibis*, 1869, pp. 256–275; A. Newton, *Zool. Rec.*, v, p. 103. Contains full list of Dodo literature since Strickland's account. Not seen by me.—*Cf.* the original paper on *Aphanapteryx*, *J. f. O.*, 1868, pp. 138–140.

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Pas vu moi-même.—Abrégé du mémoire inseré dans les *Comptes Rendus*, 1868, pp. 646, 650.

1868. Sclater, P. L., *and* Salvin, O. Synopsis of the American Rails (Rallidæ). < *P. Z. S.*, xxxvi, June 25, 1868, pp. 442–470, pl. xxxv, woodcc. figg. 1–11.
A very complete memoir, treating of 48 spp. of 10 genera of 3 subfamilies, with synonymy, diagnosis, geographical distribution, and criticism. To *Rallinæ* are assigned *Rallus* with 8

1868. SCLATER, P. L., *and* SALVIN, O.—Continued.

spp., *Aramides* with 7, *Porzana* with 18 (under the 7 subgenera *Porzana, Rufirallus, Laterirallus, Crybastus, Creciscus, Coturnicops,* and *Neocrex* (subg. n., p. 450)), *Crex* and *Thyrorhina* (g. n., p. 458) with 1 each. The *Fulicinæ* embrace 4 genera, *Porphyrio* and *Porphyriops* with 2 spp. each, *Gallinula* with 1, and *Fulica* with 7. *Heliornithinæ* are also included, with 1 sp.—*Porzana levraudi*, p. 452, pl. xxxv; *P. castaneiceps*, p. 453; *P. hauxwelli*, p. 453, spp. nn. (p. 105, pl. 53 of *Exot. Ornith.* quoted for the last named). The heads of several species (*Thyrorhina*, the *Gallinules*, and the *Coots*) are figured on the woodcuts.

1869. ANON. Creamcoloured Moor Hen [Gallinula chloropus]. < *Zoologist*, 2d ser., iv, 1869, p. 1601.

1869. BENNETT, G. [Letter on Birds of Lord Howe's Island.] < *P. Z. S.*, Nov. 11, 1869, pp. 471, 472, pl. xxxv.

Among those mentioned, one (*Ocydromus sylvestris*, Scl., p. 472, pl. xxxv) is new.

1869. FRAUENFELD, G. v. Ueber den Artnamen von Aphanapteryx. < *Verh.* (*Abh.*) *d. k.-k. zool.-bot. Gesellsch. Wien*, 1869, pp. 761–764.

Not seen—title from *Zool. Rec.*

The author objects to the substitution of the name *A. broeckii* for *A. imperialis.*

1869. GUNN, T. E. Piebald Waterhen [Gallinula chloropus]. < *Zoologist*, 2d ser., iv, 1869, p. 1848.

1869. GUNN, T. E. Abundance of Landrails [Crex pratensis]. < *Zoologist*, 2d ser., iv, 1869, p. 1920.

1869. GURNEY, J. H. [On a mode of capturing Ocydromus australis.] < *Ibis*, 2d ser., v, 1869, p. 463.

By displaying a red cloth, which would attract the bird so that it might be taken by hand—an account singularly coincident with that given by Hoffmann in the case of the *Aphanapteryx*, which Milne-Edwards determined to be near *Ocydromus.*

1869. HADFIELD, H. Nest and Eggs of the Corn Crake [Crex pratensis]. < *Zoologist*, 2d ser., iv, 1869. pp. 1920, 1921.

1869. HAMMOND, W. O. Extraordinary Flight of Landrails [Crex pratensis]. < *Zoologist*, 2d ser., iv, 1869, p. 1951.

1869. MILNE-EDWARDS, A. Observations sur les affinités zoologiques de l'Aphanapteryx espèce éteinte qui vivait encore à l'île Maurice au xvii^e siècle. < *Ann. Sci. Nat.*, 5^e ser., x, 1869, pp. 325–346, pll. 15–18.

Not seen—title from *Zool. Rec.*

1869. MILNE-EDWARDS, A. Researches into the Zoological Affinities of the Bird recently described by Herr von Frauenfeld under the name of Aphanapteryx imperialis. < *Ibis*, 2d ser., v, 1869, pp. 256–275, pl. vii, woodcc. figg. 1–8.

Places it among *Rallidæ.* Identifies it with the bird figured by Pieter van den Broeck (*Voy. Mauritius*, 1617, fig. 1), which is *Didus broeckii* Schleg.

"This paper is distinct from another published in (*Ann. Sc. Nat.*, 5^e sér., x, pp. 325–346, pls. 15–18) though, being written about the same time and the same materials, their similarity is at first sight obvious, and the plate is the same in both after the facsimile in Ritter von Frauenfeld's work (*Zool. Rec.*, v, p. 103); but this paper contains woodcuts, from Strickland's 'Dodo and its Kindred,' of Van den Broecke's and Herbert's figures of the bird. By means of the bones found in Mauritius by Mr. Edward Newton, the author makes out the affinities of this extinct form, which, he says, should bear the name of *A. broeckii* (Schlegel), and holds the place by the side of *Ocydromus* which that does to the more normal *Rallidæ.*"—*Zool. Rec.*

1869. SCLATER, P. L. [Characters of a new Species of Ocydromus (sylvestris), p. 472, pl. xxxv.] < *P. Z. S.*, xxxvii, 1869, pp. 472, 473, pl. xxxv.

1869. WALKER, T. C. Curious position of Nest of Water Hen [Gallinula chloropus]. < *Zoologist*, 2d ser., iv, 1869, p. 1723.

1870. COUES, E. The Clapper Rail [Rallus longirostris (crepitans)]. < *Am. Nat.*, iii, 1870, pp. 600–607.

Account of the breeding and other habits, from original observations at Fort Macon, N. C.

1870. REEKS, H. Land Rail [Crex pratensis] found alive in a Pea-rick in January. < *Zoologist*, 2d ser., v, 1870, pp. 2063, 2064.

1870. Smith, C. Little Crake [Porzana minuta] in Somersetshire. < *Zoologist*, 2d ser., v, 1870, p. 2386.

1871. Boyes, F. Waterhen [Gallinula chloropus] submerging itself. < *Zoologist*, 2d ser., vi, 1871, pp. 2522, 2523.

1871. Boyes, F. Is the Corn Crake [Crex pratensis] Polygamous? < *Zoologist*, 2d ser., vi, 1871, p. 2869.

1871. Brehm, A. E. Zur Fortpflanzungsgeschichte des Purpurhuhus [Porphyrio smaragnotus, Temm.] < *J. f. O.*, xix, 1871, pp. 34–39.

In the Berlin Aquarium.

1871. Jesse, W. Early Nest of the Moorhen [Gallinula chloropus]. < *Zoologist*, 2d ser., vi, 1871, p. 2771.

1871. Lawrence, G. N. Descriptions of New Species of Birds from Mexico, Central America, and South America, with a Note on Rallus longirostris. < *Ann. Lyc. Nat. Hist. N. Y.*, x, 1871, pp. 1–21.

The note on *Rallus longirostris* states that with this species *R. crassirostris* Lawr. from Bahia agrees; it being apparently different from *R. crepitans* Gm.

1871. Lawrence, G. N. [Maintains the validity of Porzana guatemalensis.] < *Ibis*, 3d ser., i, 1871, p. 370.

The editor maintains the contrary in a note appended.

1872. Leach, H. R. The Landrail [Crex pratensis, near Harrow]. < *Zoologist*, 2d ser., vii, 1872, p. 3112.

1872. Hadfield, H. Baillon's Crake [Porzana bailloni, in Isle of Man]. < *Zoologist*, 2d ser., vii, 1872, pp. 3272, 3273.

1872. Mathew, M. A. Landrail [Crex pratensis] taking to Water. < *Zoologist*, 2d ser., vii, 1872, p. 3316.

1872. Potts, T. H. Notes on a New Species of Rail, Rallus pictus, Painted Rail. < *Trans. and Proc. New Zealand Inst. for* 1871, iv, 1872, p. 202, 203.

1872. Owen, R. [Letter on the Remains of Aptornis found in Glenmark Swamp, New Zealand.] < *P. Z. S.*, xl, 1872, p. 24.

1872. Rickards, M. S. C. Spotted Crake [Porzana maruetta] near Clifton. < *Zoologist*, 2d ser., vii, 1872, pp. 2945, 2946.

1872. Walden, *Lord.* Description of a new Species of Porzana [bicolor] from the Himalayas. < *Ann. Mag. Nat. Hist.*, 4th ser., ix, 1872, p. 47.

1872. Whitaker, J., Jr. Spotted Crake [Porzana maruetta] near Nottingham. < *Zoologist*, 2d ser., vii, 1872, p. 2946.

1873. Anon. Schlauheit einer Wasserhühns. < *Aus der Natur*, lxii, oder n. F., 1, 1873, pp. 267, 268.

1873. Anon. The Notornis a rara avis. < *Forest and Stream*, i, Sept. 25, 1873, p. 103.

1873. Anon. [Editorial.] [Abundance of Coots (Fulica americana) on the Massachusetts coast.] < *Am. Sportsman*, iii, 1873, p. 57.

1873. Finsch, O. Bemerkungen zu dem vorstehenden [d. h., Hutton über die Ocydromus-Arten Neuseeland's] Aufsatze über die Ocydromus Arten. < *J. f. O.*, xxi, 1873, pp. 401–404.

1873. Gurney, J. H. Note on the [habits of the] Waterhen [Gallinula chloropus]. < *Zoologist*, 2d ser., viii, 1873, p. 3580.

1873. Gurney, J. H. Waterhens [Gallinula chloropus] nesting in Trees. < *Zoologist*, 2d ser., viii, 1873, p. 3652.

1873. Hutton, F. W. On Rallus modestus of New Zealand. < *Ibis*, 3d ser., iii, 1873, pp. 349–352, woodcc.

Maintaining its specific validity.

1873. Hutton, F. W. [Note on Tribonyx mortieri.] < *Ibis*, 3d ser., iii, 1873, pp. 427, 428.

1873. Hutton, F. W. Ueber die Arten der Gattung Ocydromus in Neuseeland. < *J. f. O.*, xxi, 1873, pp. 398–401.

6 spp.—*O. hectori*, p. 399, *O. finschii*, spp. nn. Cf. *op. cit.*, 1872, pp. 174–181.

1873. Newton, A. [Remarks on exhibition of an old engraving of a bird resembling the 'Géant' of Leguat.] < *P. Z. S.*, xli, 1873, pp. 194, 195.

1873. Salvin, O. Note on the Fulica alba of White. < *Ibis*, iii, 3d ser., 1873, p. 295, pl. x.

Referred to genus *Notornis*; cf. *tom. cit.*, pp. 44, 45.

1873. Tatton, T. E. Waterhens [Gallinula chloropus] Nesting in Trees. < *Zoologist*, 2d ser., viii, 1873, p. 3692.

1874. Anon. A strange circumstance. < *Am. Sportsman*, iii, 1874, p. 316. See also p. 364.

Note of finding a "rail" [*Porzana carolina?*] in southern New Jersey on Nov. 20th.

1874. Brewer, T. M. Breeding Grounds of the Sora Rail [Porzana carolina]. < *Am. Sportsman*, iv, 1874, p. 339.

Correcting errors of "Homo" (*ibid.*, July 18), defining breeding range of *Porzana carolina*, and describing nest and eggs.

1874. "C. B." Rail [Porzana carolina] in Winter. < *Am. Sportsman*, iv, 1874, p. 28.

At Whitehall, N. Y., in February.

1874. Clark-Kennedy, A. J. Baillon's Crake [Porzana bailloni] near Eastbourne. < *Zoologist*, 2d ser., ix, 1874, p. 4159.

1874. Corbin, G. B. [Note on the habits of the] Corn Crake [Crex pratensis]. < *Zoologist*, 2d ser., ix, 1874, p. 3881.

1874. Coues, E. The Rails—Family Rallidæ. < *Am. Sportsman*, v, Oct. 31, 1874, p. 65.

From his 'Birds of the Northwest.'

1874. Durnford, H. Note on the habits of the Water Rail [Rallus aquaticus]. < *Zoologist*, 2d ser., ix, 1874, pp. 3881, 3882.

1874. "Friend of Dog and Gun." [Justus von Lengerke.] Least Water Rail [Porzana jamaicensis]. < *Am. Sportsman*, v, Dec. 12, 1874, p. 171.

Occurrence at West Hoboken, N. J.

1874. Gurney, J. H. Water Rail [Rallus aquaticus, captured by hand]. < *Zoologist*, 2d ser., ix, 1874, p. 4036.

1874. "Homo." [C. S. Westcott.] Rail [Porzana carolina] Shooting on the Delaware River. < *Am. Sportsman*, iv, 1874, p. 166.

1874. Hutton, F. W. On a New Genus [Cabalus] of Rallidæ. < *Trans. and Proc. New Zealand Inst. for* 1873, vi, 1874, pp. 108–110, pl. xx.

Cabalus, g. n., p. 108, proposed for *Rallus modestus*, *Ibis*, July, 1872, and *op. cit.*, v, 1873, p. 223. See especially *tom. cit.*, p. 124.

1874. Hutton, F. W. Notes on the New Zealand Wood-hens (Ocydromus). < *Trans. and Proc. New Zealand Inst. for* 1873, vi, 1874, pp. 110–112.

Read before Wellington Philos. Soc., 22 Sept., 1873. *O. troglodytes*, *O. hectori*, sp. n., p. 110, *O. australis*, *O. fuscus*, *O. finschi*, sp. n., p. 111, *O. earli*; diagnosis of, and remarks on.

1874. "Jacobstaff." Sora [Porzana carolina] in May [in Central New York]. < *Forest and Stream*, ii, May 21, 1874, p. 230. See p. 261.

1874. Krider, J. Rail [Porzana carolina] out of Season. < *Am. Sportsman*, iii, 1873–74, p. 364.

Reply to note on p. 316, *ibid.*, concerning late stay of *Porzana carolina*.

1874. O[ustalet], E. Les anciens oiseaux des iles Mascareignes I La poule d'eau de l'île Maurice. < *La Nature*, 2ᵉ année, N°. 34, 24 janvier 1874, pp. 113–116, dessin.

1874. Palmer, J. E. Baillon's Crake [Porzana bailloni] near Huddersfield. < *Zoologist*, 2d ser., ix, 1874, p. 4159.

1874. PILLEY, J. B. Landrail [Crex pratensis] in January [in Great Britain]. < *Zoologist*, 2d ser., ix, 1874, p. 3953.

1874. SCHOMBURGK, R. [Communication from, containing an account of the nesting-habits of Fulica australis]. < *P. Z. S.*, xlii, 1874, p. 129.

1874. SUCKER, A. [*pseudon.*] [Occurrence of Porzana noveboracensis at Centralia, Ill.] < *Am. Sportsman*, iv, 1874, p. 45.

"Sucker" is a local vulgarism for a native of Illinois, said to have originated from some necessity early settlers were under of finding water in holes in the prairie so deep that they were obliged, as it were, to suck it up in drinking. However apt or otherwise eligible the slang pseudonyms of sporting writers may seem to them at the time when they "write for the newspapers," such nonsense wears a very unbecoming air when it comes to be set forth formally in Bibliography.

1875. BULLER, W. L. [On Rallus modestus.] < *Trans. and Proc. New Zealand Inst. for* 1874, vii, 1875, *Proc. Wellington Phil. Soc.*, p. 511.

Prof. Newton's determination of the validity of the species.

1875. CORBIN, G. B. Coot [Fulica atra] near Ringwood. < *Zoologist*, 2d ser., x, May, 1875, pp. 4458, 4459.

1875. "R." Singular Freak of a Coot [Fulica americana]. < *Forest and Stream*, v, Oct. 7, 1875, p. 131.

1875. RAMSAY, E. P. Description of the Eggs and Young of Rallina tricolor, from Rockingham Bay. < *P. Z. S.*, Nov. 16, 1875, pp. 603, 604.

1875. WHITMAN, G. P. The Purple Gallinule [Porphyrio martinica, in Eastern Massachusetts]. < *Forest and Stream*, iv, Apr. 22, 1875, p. 167.

1875. WHITMAN, G. P. The Purple Gallinule [Porphyrio martinica, in Massachusetts]. < *Am. Nat.*, ix, No. 10, Oct., 1875, p. 573.

1876. BOYES, F. Is the Common Waterhen [Gallinula chloropus] Migratory or not? < *Zoologist*, 2d ser., xi, Mar., 1876, pp. 4845, 4846.

1876. GARROD, A. H. On the Anatomy of Aramus scolopaceus. < *P. Z. S.*, Mar. 7, 1876, pp. 275–277, figg. 1–3.

Important; with special reference to the systematic position of the genus, which is considered to be most intimately related to *Grus*, in view of many of its anatomical characters. The skull is figured in three views.

1876. [GERVAIS, P.] (A. H.) Garrod: Sur l'anatomie de l'Aramus scolopaceus. (Proc. zool. Soc. London, 1876, p. 275). < *Gerv. Journ. de Zool.*, v, 1876, pp. 439, 440.

See last title.

1876. [GRINNELL, G. B.] A Word or two about some of our Rails [North American Rallidæ]. < *Forest and Stream*, vii, Nov. 9, 1876, p. 212.

1876. GURNEY, J. H., JR. Little Crake [Porzana minuta] at Hastings. < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5126.

1876. GURNEY, J. H., JR. Little Crake [Porzana minuta] at Hastings. < *Zoologist*, 2d ser., xi, Nov., 1876, p. 5167.

1876. HUDSON, W. H. Notes on the Rails [Rallidæ] of the Argentine Republic. < *P. Z. S.*, Jan. 18, 1876, pp. 102–109.

Very interesting, and including many notes on other birds of the same region, as *Aramus*, *Parra*, *Ibis*, *Milvago*, and some *Passeres*.

1876. JEFFREY, W. The Common Waterhen [Gallinula chloropus] Migratory. < *Zoologist*, 2d ser., xi, Apr., 1876, pp. 4882, 4883.

1876. MATHEW, G. F. Baillon's Crake [Porzana bailloni] at Braunton Burrows. < *Zoologist*, 2d ser., xi, Mar., 1876, pp. 4844, 4845.

1876. NEWMAN, E. White Spotted Crake [Porzana maruetta]. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4845.

1876. NICHOLLS, R. P. Spotted Gallinule [Porzana maruetta] near Kingsbridge. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4763.

1876. Prior, C. M. Thirteen Eggs in a Moorhen's [Gallinula chloropus] Nest. < *Zoologist*, 2d ser., xi, July, 1876, p. 5006.

1876. Prior, C. M. Change of Plumage in the Moorhen [Gallinula chloropus]. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5084.

1876. "Recapper." [Thos. C. Abbott.] To Dr. Coues. < *Rod and Gun*, viii, June 24, 1876, p. 203.
Notes on *Fulica americana* observed at Trenton, N. J.

1876. [Sclater, P. L.] [Addition of Porzana notata to the Society's Menagerie.] < *P. Z. S.*, Feb. 15, 1876, p. 255.

1876. Swinhoe, R. [Letter on Porzana exquisita, claiming the name.] < *Ibis*, 3d ser., vi, Oct., 1876, pp. 507, 508.
See *P. erythrothorax*, *J. f. O.*, 1873, p. 107; *P. undulata*, *J. f. O.*, 1874, p, 333; *Ann. Mag. N. H.*, 4th ser., xii, Nov., 1873, p. 376; *Ibis*, 1876, p. —.

1877. Browne, F. C. Occurrence of the Black Rail [Porzana jamaïcensis] in Massachusetts [at Plymouth, in August, 1869]. < *Forest and Stream*, viii, Feb. 22, 1877, p. 33. See p. 129.

1877. [Coues, E.] Birds. < *The Mirror* (Baltimore, Md.), Sept. 1, 1877.
Editorial extract from *Birds of the Northwest*, relating to *Rallus virginianus*.

1877. [Coues, E.] Communion with Birds. < *The Temperance Vedette* (Terrill, Texas), Aug. 11, 1877.
Editorial extract from *Birds of the Northwest*, relating to *Rallus virginianus*.

1877. Curtis, T. D. The Occurrence of the Black Rail [Porzana jamaïcensis] in Massachusetts [in Boston]. < *Forest and Stream*, viii, Apr. 5, 1877, p. 129. See p. 33.

1877. Streets, T. H. Description of a new Moorhen [Gallinula sandvicensis] from the Hawaiian Islands. < *Ibis*, 4th ser., i, Jan., 1877, pp. 25–27, fig.

1878. Evans, R. D. [Porzana carolina] Caught at Sea. < *Forest and Stream*, x, Aug. 1, 1878, p. 503.
An individual captured 350 miles off the coast of Virginia.

1878. Sclater, [P. L.] [Exhibition of the probable type of Fulica gallinuloides King, Zool. Journ., iv, p. 96 = F. leucoptera V., nec F. armillata (cf. P. Z. S., 1868, p. 465; Exot. Orn., p. 115).] < *P. Z. S.*, Mar. 5, 1878, p. 291.

1879. "Aix Sponsa." The Mud-hen of the West [Fulica americana]. < *Forest and Stream*, xii, July 10, 1879, p. 444.
Habits of young of this species.

1879. "Byrne." The "Mud Hen" of the West [Fulica americana]. < *Forest and Stream*, xii, Apr. 24, 1879, p. 226.

1879. Chubb, H. E. Whose Mistake? < *Forest and Stream*, xiii, Oct. 9, 1879, p. 705.
Refers to *Porzana noveboracensis* in Ohio.

1879. Coues, E. Letters on Ornithology. No. 23.—The American Coot.—(Fulica Americana, Gm.) < *The Chicago Field*, June 9, 1879.
From the "Birds of the Northwest."

1879. Deane, R. The Florida Gallinule [Gallinula galeata] in New England. < *Forest and Stream*, xiii, Nov. 6, 1879, p. 785.

187–. Elliot, D. G. The Genus Porphyrio and its Species. < *Stray Feathers*, —, 187–, pp. ———, 1 pl.

1879. [Fitch, E. H.] The American Coot [Fulica americana]. < *The Journ. of Sci.* (Toledo, Ohio), 2d ser., ii, No. 1, Apr., 1879, cut.

1879. [Grinnell, G. B.] A Rare Rail [Porzana noveboracensis]. < *Forest and Stream*, xiii, Sept. 18, 1879, p. 645.
Captured in New Jersey.

1879. [Grinnell, G. B.] The Florida Gallinule [Gallinula galeata] in Connecticut. < *Forest and Stream*, xiii, Oct. 2, 1879, p. 684.

1879. HOLBERTON, W. The Yellow-breasted Rail [Porzana noveboracensis]. < *Forest and Stream*, xii, June 26, 1879, p. 405.

Capture of a specimen in Hackensack (N. J.) Meadows in Apr., 1879.

1879. LINDEN, C. Note on Porzana noveboracensis. < *Forest and Stream*, xiii, Nov. 6, 1879, p. 785.

Capture of this species at Clinton, Iowa.

1879. MERRILL, H. W. Rail [Porzana carolina] in Wisconsin. < *Forest and Stream*, xiii, Nov. 20, 1879, p. 827.

Mentions also the "King rail" (*? Rallus elegans*) and some game birds.

1879. "PERDIX." The Common Gallinule [Gallinula galeata] in Illinois. < *Forest and Stream*, xii, July 10, 1879, p. 444.

1879. ROBINSON, R. E. [Gallinula galeata] Unusual in Vermont. < *Forest and Stream*, xii, May 15, 1879, p. 285.

Notice of capture of Florida Gallinule in Vermont, with extraordinary and no doubt incorrect statement that the "Purple Gallinule" is common there.

Gruidæ.

1701. Duverney, G. J. De Physicis & Chemicis experimentis & historia animalium. < *Reg. Scient. Acad. Hist. Paris*, Duhamel ed., i, 1701, pp. 251–255.

Gruis Africanæ dissectio, Ann. 1684.

1733. Duverney, G. J. Observation sur la trachée-artère de la grue d'Afrique. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, ii, 1733, p. 6.

1733. Méry, J. Observation anatomique sur le coeur de l'Oiseau royal [Balearica pavonina]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, i, 1733, p. 430.

1733. Perrault, C. Description anatomique de six Oiseaux appellez Demoiselles de Numidie [Anthropoïdes virgo]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. ii, 1733, pp. 1–14, pll. 35, 36.

1734. Perrault, C. Description anatomique de deux Oiseaux royaux [Balearica pavonina]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. iii, 1734, pp. 199–206, pll. 28, 29.

1757. Perrault, C. Anatomische Beschreibung . . . [Anthropoïdes virgo]. < *Abhandl. Konigl. Französisch. Akad.*, ii, 1757, pp. ———.

Not seen. German transl. from *Mém. de l'Acad. Paris*, iii, pt. ii, 1733, p. 1.

1757. Perrault, C. Anatomische Beschreibung zweier Königsvögel [Balearica pavonina]. < *Abhandl. Konigl. Französisch. Akad.*, ii, 1757, pp. 355–—.

Not seen—title from Giebel. Germ. trans. from *Mém. de l'Acad. Paris*, iii, pt. iii, 1734, p. 199.

1803. Froriep, [L. F. v.] Beschreibung und Abbildung des Riesen-Kranichs (Grus gigantea [leucogeranus]). < *Voigt's Mag.*, vi, 1803, pp. 261–264, pl.

Nicht mir selbst zugänglich.

1818. Thunberg, C. P. Tetrapteryx capensis, ett nytt Fogelslågte. < *Kongl. Vetensk. Acad. Handl.*, 1818, pp. 242–245, pl. viii.

This g. sp. n. is *Anthropoïdes paradiseus* (Licht.).

1824. Seyffertitz, [A.] v. Merkwürdige Beobachtungen über den grauen Kranich, Grus cinerea, Bechst. von Herrn Freiherrn v. Seyffertitz, aus dessen Briefen mit Beibehaltung seiner eigenen Worte. < *Ornis*, Heft i, 1824, pp. 79–110.

1825. Vigors, N. A. Descriptions of some rare, interesting, or hitherto uncharacterized subjects of Zoology. < *Zool. Journ.*, ii, No. 6, July, 1825, pp. 234–241, pl. 8.

This is the third article of a series with above major title; it is devoted, so far as ornithology is concerned, to *Anthropoïdes stanleyanus*, sp. n., p. 234, pl. 8 [=*paradiseus*].

1826. Less[on, R. P.]. Description de quelques objets de zoologie, rares, interessans, et jusqu'à présent mal caractérisés; par N. A. Vigors; . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 376.

Anthropoïdes stanleyanus [=*paradiseus*].

1826–27. Seyffertitz, A. v. Merkwürdige Beobachtungen des Herrn Freiherrn Anton von Seyffertitz über den grauen Kranich, Grus cinerea, Bechst. < *Ornis*, Heft ii, 1826, pp. 64–80; Heft iii, 1827, pp. 42–54.

1833. [Anon.] Om en tam Trana [Grus cinerea]. < *Tidsk. f. Jägare och Naturf.*, ii, 1833, pp. 569–571, 700.

Not seen.

1833. [Bennett, E. T.] [Characters of two Species of Crowned Cranes from Africa.] < *P. Z. S.*, pt. i, 1833, pp. 118, 119. (*Oken's Isis*, 1835, col. 549–550.)

Two species of "*Anthropoïdes*" (i. e., *Balearica*) are distinguished: *A. pavonina* from N. and W. Africa, and *A. regulorum*, of S. Africa; the latter being *Grus regulorum* Licht.

1833. Gray, [J. E.] [On the Crowned and Demoiselle Cranes.] < *P. Z. S.*, i, 1833, p. 119.

Restricting *Balearica*, Briss., to the former, and *Anthropoïdes*, V., to the latter.

1835. Yarrell, W. [Note on the trachea of the Stanley Crane (Anthropoïdes paradiseus.] < *P. Z. S.*, iii, 1835, p. 132.

1839. Reade, T. [Notice of forwarding of Anthropoïdes virgo to the Society.] < *P. Z. S.*, vii, 1839, p. 169.

1844. Couper, J. H. [Note on the doubted specific character of Grus canadensis.] < *Proc. Acad. Nat. Sci. Phila.*, ii, 1844, p. 24.

1845. Sundevall, [C. J.] Samtidige Observationer [om Tranans (Grus cinerea) flyttning]. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1844, 1845, pp. 79, 80.

The date given for this and the next article is that of the made-up vol.—may be actually 1844.

1845. Sundevall, [C. J.] Om Tranans [Grus cinerea] flyttning. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1844, 1845, pp. 167–171.

1849–55. Andrews, W. On the occurrence of the Crane (Grus cinerea) in Ireland. < *Dublin Nat. Hist. Soc. Proc.*, i, 1849–55, pp. 71–73.

Not seen—title from *Roy. Soc. Cat.* Actual date not ascertained.

1849. Wolley, J. Occurrence of the Common Crane [Grus cinerea] in Shetland. < *Zoologist*, vii, 1849, pp. 2352, 2353.

1850. Gurney, J. H. Occurrence of the Crane (Grus cinerea) in Norfolk. < *Zoologist*, viii, 1850, p. 2771.

1850. [Jardine, W.] Grus antigone. < *Jard. Contrib. Orn.*, 1850, pp. 19–26 and 153, pl. xlii.

Observations on its eggs, habits, etc., chiefly from E. Blyth.

1851. Ellman, J. B. Occurrence of the Crane [Grus cinerea] at Pevensey, Sussex. < *Zoologist*, ix, 1851, p. 3234.

1851. Tyzenhauz, [C. v.] Rectification du double emploi de la Grue à nuque blanche, Grus leucauchen, Temm. < *Rev. et Mag. de Zool.*, iii, 1851, pp. 577–579.

1852. Bonsdorff, E. J. Symbolæ ad Anatomiam Comparatam Nervorum Animalium Vertebratorum, . . . II. Nervi cerebrales Gruis cinereæ Linn. < *Acta Soc. Scient. Fennicæ*, iii, 1852, pp. 591–624, pll. x, x*a*.

1853. Bryant, H. [On the Sand-hill Crane (Grus canadensis).] < *Proc. Boston Soc. Nat. Hist.*, iv, 1853, pp. 303–307.

Maintaining the distinctness of *Grus canadensis* from *G. americana*, and giving an account of its habits as observed in Florida.

1854. Borrer, W., Jr. Occurrence of the Crane (Grus cinerea) in Sussex. < *Zoologist*, xii, 1854, p. 4512.

1854. Dudley, W. Description of a species of Crane [Grus hoyianus] found in Wisconsin, presumed to be new. < *Proc. Acad. Nat. Sci. Phila.*, vii, 1854, p. 64.

Cf. Hartl., *J. f. O.*, iii, 1855, pp. 336, 337.

1855. Hartlaub, G. Ueber Grus hoyianus Dudl. < *J. f. O.*, iii, 1855, pp. 336, 337.

1856. Gloger, C. W. L. Sollten die Kraniche [Grus cinerea] wohl eine besondere Sommertracht haben? < *J. f. O.*, iv, 1856, pp. 392–394.

Aus *Nilsson's Skand. Fn.* Cf. *J. f. O.*, 1857, p. 168.

1857. Homeyer, E. F. v. Zur Naturgeschichte des gemeinen Kranichs, Grus cinerea. < *J. f. O.*, v, 1857, pp. 168, 169.

Cf. *op. cit.*, iv, 1856, p. 392.

1859. Cottle, T. J. Grus americana and Grus canadensis: are they the same bird in different stages of growth? < *Canad. Journ.*, iv, 1859, pp. 266–268.

Their distinctness maintained.

1859. Sclater, P. L. [Exhibition of the eggs of Grus montignesia, Grus virgo, Grus cinerea, laid by birds in the Society's Gardens.] < *P. Z. S.*, xxvii, 1859, p. 353.

1860. Meves, W. [Is there a paper by, on plumage of Grus cinerea?] < *Oefv. K. Vetensk.-Akad. Förh.*, xvii, 1860, p. 218.

1861. Bartlett, A. D. Notes on the Breeding and Rearing of the Chinese Crane (Grus montignesia) in the Society's Gardens. < *P. Z. S.*, xxix, 1861, pp. 369, 370, pl. xxxv.

1862. Bartlett, A. D. Notes on the Breeding and Rearing of the Chinese Crane (Grus montignesia) in the Society's Gardens. < *Ann. Mag. Nat. Hist.*, 3d ser., ix, 1862, pp. 324–326.
From *P. Z. S.*, Nov. 26, 1861, p. 369.

1862. Cabanis, J. Aufforderung zu Beobachtungen über die Wanderungen der Kraniche [Grus cinerea]. (Auszug aus einem Briefe des Prof. C. Sundevall in Stockholm an Prof. W. Peters in Berlin.) < *J. f. O.*, x, 1862, p. 134.
Mit Anmerkungen des Herausgebers.

1862. Gloger, C. W. L. Die rostig-braunen Rückenfedern des Kranichs [Grus cinerea] im Sommer. < *J. f. O.*, x, 1862, pp. 132, 133.
Aus Meves, *Oefv. K. Vet.-Akad. Förh.*, *Årg.* xvii, Nr. 4, S. 218.

1862. Newman, E. Occurrence of the Crane [Grus cinerea] at Hartlepool. < *Zoologist*, xx, 1862, p. 8005.

1863. Anon. The Numidian Crane [Anthropoïdes virgo] in Orkney. < *Zoologist*, xxi, 1863, p. 8692.

1863. Gonzenbach, J. G. v. Einige Notizen über Grus cinerea. < *J. f. O.*, x, 1863, pp. 68–72.
Zur Lebensweise, mit besonderer Rücksicht an dessen Zug.

1863. Sacc, *Dr.* Sur les Grues [Gruidæ]. < *Bull. Soc. Acclim.*, x, 1863, pp. 736–738.
Traitant de cinq espèces apprivoisées.

1864. Homeyer, E. v. Ueber die Rückenfärbung des brütenden Kranichs [Grus cinerea]. < *J. f. O.*, xii, 1864, pp. 337–339.
Bemerkungen über Meve's Artikel, *Oefv. K. Vet.-Akad. Förh.*, 1860, pp. 218——; *J. f. O.*, 1862, pp. 132, 133.

1865. Smith, Cecil. Crane [Grus cinerea] at Stallford. < *Zoologist*, xxiii, 1865, p. 9848.

1866. Jerdon, T. C. The Common Crane [Grus cinerea] in India. < *Zoologist*, 2d ser., i, 1866, pp. 346, 347.
From 'Birds of India,' ii, p. 665.

1866. Jerdon, T. C. The Demoiselle Crane [Anthropoïdes virgo] in India. < *Zoologist*, 2d ser., i, 1866, p. 347.
From 'Birds of India,' ii, p. 667.

1868. Sclater, P. L. [Notices of recent additions to the Society's Menagerie.] < *P. Z. S.*, xxxvi, 1868, pp. 566, 567.
Grus americana, with list of 12 spp. of *Gruidæ*.

1869. Anon. Crane [Grus cinerea] at Lynn. < *Zoologist*, 2d ser., iv, 1869, p. 1803.

1869. Goebel, H. Einige Beobachtungen über den Kranich[Grus cinerea]zug. < *J. f. O.*, xvii, 1869, pp. 193, 194.

1869. Gurney, J. H., Jr. Crane [Grus cinerea] at Tewkesbury. < *Zoologist*, 2d ser., iv, 1869, p. 1803.

1869. Gurney, J. H., Jr. Occurrences of the Crane [Grus cinerea] in 1869. < *Zoologist*, 2d ser., iv, 1869, pp. 1841, 1842.

1869. Hart, W. Crane [Grus cinerea] at Wareham. < *Zoologist*, 2d ser., iv, 1869. p. 1803.

1869. Nicholls, H., Jr. Crane [Grus cinerea] on the Devon Coast. < *Zoologist*, 2d ser., iv, 1869, p. 1866.

1869. Stevenson, H. Cranes [Grus cinerea] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, p. 1803.

1870. D[elondre], A. A. Des Grues [Gruidæ]. < *Bull. Soc. Acclim.*, 2^{e} sér., vii, 1870, pp. 93, 94.
"Land and Water," 27 nov. 1869, p. 347.

1870. Soubiran, J. L. [Note sur les Grues (Gruidæ) de Japon et de Chine.] < *Bull. Soc. Acclim.*, 2e sér., vii, 1870, p. 250.

1871. Gurney, J. H. A Crane [Grus cinerea] seen in South Devon in 1869. < *Zoologist*, 2d ser., vi, 1871, pp. 2683, 2684.

1872. [F. W.] Den fireogtrediveaarige Trane [Grus cinerea]. < *Tidssk. for populære Fremst. af Naturvidensk.*, iv ser., iv, 1872, p. 324.

Efter F. W., i ,,Svenska Jägerförbundets Nya Tidsskrift,'' 1867.

1872. Gray, R[obert]. [Occurrence of Grus (Balearica) pavonina in Ayreshire, Scotland, Sept. 17, 1871.] < *Ibis*, 3d ser., ii, 1872, pp. 201, 202.

1872. Schlegel, H. De Witte Kraanvogel, Grus leucogeranus. < *Jaarboekje van het Kon. Zool. Genootsch. Nat. Art. Mag.*, 1872, pp. 173–175, pl.

Not seen?

1874. Coues, E. The Cranes [Gruidæ] of America. < *Forest and Stream*, iii, Aug. 20, 1874, p. 20.

Popular sketch of the two then recognized North American species, *Grus americana* and *G. canadensis*.

1875. "B." Sandhill Cranes [Grus canadensis]. < *Forest and Stream*, iv, Mar. 25, 1875, p. 101.

1875. "Southern Californian." A Feathered Hunter [Grus canadensis?]. < *Oölogist*, i, 1875, p. 61.

1876. Gurney, J. H., Jr. Notes on Cranes [Grus cinerea]. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4843.

1876. Herridge, W. The Demoiselle Crane [Anthropoïdes virgo, as a British Bird]. < *Zoologist*, 2d ser., xi, May, 1876, p. 4928.

1876. Hills, R. S. Cranes [Grus cinerea] near Inverness. < *Zoologist*, 2d ser., xi, Jan., 1876, pp. 4763, 4764.

1880. Allen, J. A. Roberts on the Convolution of the Trachea in the Sandhill and Whooping Cranes [Grus canadensis and G. americana]. < *Bull. Nutt. Ornith. Club*, v, No. 3, July, 1880, pp. 179, 180.

Short notice of the paper in *Am. Nat.*, xiv, 1880, pp. 108–114.

1880. Coues, E. Note on Grus fraterculus of Cassin. < *Bull. Nutt. Ornith. Club*, v, No. 3, July, 1880, p. 188.

Stating that if the "Sand-hill" Crane of *Arctic* America be *G. fraterculus*, this is a synonym of *G. canadensis* L. (Edw., pl. 133), and that another name, perhaps *G. pratensis* Bartr., should be used for the common U. S. bird.

1880. Ridgway, R. The Lttle [sic] Brown Crane (Grus fraterculus, Cassin). < *Bull. Nutt. Ornith. Club*, v, No. 3, July, 1880, pp. 187, 188.

Maintaining its distinctness from *G. canadensis*, and stating it to be the common Crane of Arctic America, the writer gives the diagnoses and synonymy of the two supposed species. See Coues, *ibid.*

1880. Roberts, T. S. The Convolution of the Trachea in the Sandhill and Whooping Cranes [Grus canadensis and G. americana]. < *Am. Nat.*, xiv, No. 2, Feb., 1880, pp. 108–114, figg. 1, 2.

Trachea of *G. canadensis*, before supposed simple, described as convoluted within the sternum, as in *G. americana*, though to less extent (eight inches as against twenty-seven). Figures of the parts in both species. Cf. *Bull. Nutt. Ornith. Club*, July, 1880, p. 179.

Psophiidæ.

1768. VOSMAER, A. Description | du | Trompette Americain [Psophia crepitans], | Oiseau | très-peu connu, doué d'une propriété singulière; | Apporté de | Surinam; | et | Se trouvant dans la Ménagerie, & dans le Cabinet de | Son Altesse Sérénissime | Monseigneur le Prince d' Orange et de Nassau, | Stadhouder He'-re'ditaire, Gouverneur, Capi- | tain Ge'ne'ral et Amiral des Provinces-Unies | des Pais-Bas, &c. &c. &c. | Par | A. Vosmaer, | Directeur des Cabinets d'Histoire Naturelle & de Curiosités de S. A. S., Membre de | l'Académie Impériale, & Correspondant de l'Académie Royale des Sciences de Paris. | A Amsterdam, | Chez Pierre Meijer, | MDCCLXVIII. 4to. pp. 8, pl. 1.

1824. EDITORIAL. The Trumpeter-Bird [Psophia crepitans], a true Ventriloquist. < *Edinb. Philos. Journ.*, xi, 1824, p. 417.

1825. BLAINVILLE, H. [M. D.] DE. Note sur l'appareil sternal de l'Agami [Psophia crepitans]. < *Nouv. Bull. Sc. Soc. Philom.*, i, ii, Août 1825, pp. 126, 127. (*Froriep's Notizen*, xii, No. 244, 1825, pp. 17, 18.)

Not seen.

1825. BLAINVILLE, H. M. D. DE. Note sur l'appareil sternal de l'Agami (Psophia Agami [crepitans]). < *Féruss. Bull.*, 2e sect., vi, 1825, pp. 405, 406.

Extrait du *Bull. de la Soc. Philom.*, août 1825, p. 126.

1826. TRAIL[L], T. S. Observations on the Habits, Appearance, and Anatomical Structure of the Bird named The Trumpeter, Psophia crepitans of Linnæus, Agami of Cuvier. < *Mem. Wernerian Nat. Hist. Soc.*, v, pt. ii, 1826, pp. 523–532, pl. xvii.

Read Nov., 1825. The plate shows the thorax, trachea, and bronchi.

1827. TRAILL, T. S. [Ueber Psophia crepitans.] < *Froriep's Notizen*, xix, No. 397, 1827, pp. 1–8.

Not seen. From *Mem. Wern. Soc.*, v, 1826, pp. 523–532.

1838. HANCOCK, J. Notes on the Trumpeter Bird, or Waracobi of th [sic] Arowahs of Guiana; Psophia crepitans of Linnæus. < *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 490–492.

Voice, habits, &c.

1838. HANCOCK, J. [Notizen über Psophia crepitans.] < *Froriep's Neue Notizen*, xiii, No. 160, 1838, pp. 85, 86.

Not seen: see the original, *Charlesw. Mag. Nat. Hist.*, ii, 1838, pp. 490–492.

1862. BATAILLE, —. Observations sur l'Agami [Psophia crepitans]. < *Bull. Soc. Acclim.*, ix, 1862, pp. 210, 211.

1862. TARADE, E. DE. Sur l'Agami [Psophia crepitans]. Lettre adressée a M. le président de la Société impériale d'Acclimatation. < *Bull. Soc. Acclim.*, ix, 1862, pp. 293, 294.

1872. VOISIN, P. Les Agamis (Psophia [crepitans]). < *Bull. Soc. Acclim.*, 2e sér., ix, 1872, pp. 692, 693.

Mœurs et habitudes.

Cariamidæ.

1809. GEOFFROY SAINT-HILAIRE, É. Description Du Cariama de Marcgrawe, microdactylus Marcgravii [Dicholophus cristatus]. < *Ann. du Mus. d'Hist. Nat.*, xiii, 1809, pp. 362–370, pl. 26.

Avec les caractères des genres *Palamedea* et *Psophia*, et sur les habitudes du *Cariama*. On the strength of the above, G. R. Gray quotes *Microdactylus marcgravii*, g. sp. n., Geoffr., 1809.

1823. MAXIMILIAN, —. Beiträge zur Naturgeschichte des Sariama oder Seriama [Dicholophus cristatus]. < *Nov. Act. Acad. Leop. Carol. Nat. Cur.*, xi, pt. ii, 1823, pp. 341–350, pl. 45.

Mir nicht zugänglich.

1836. MARTIN, W. [Notes on the visceral and osteological Anatomy of the Cariama (Dicholophus cristatus Ill.)] < *P. Z. S.*, iv, 1836, pp. 29–32.

1838. MARTIN, [W.] Zerlegung des Sariama (Dicholophus cristatus). < *Oken's Isis*, Bd. xxxi, 1838, p. 181.

Aus d. *P. Z. S.*, iv, 1836, pp. 29–32.

1853. BURMEISTER, H. Beiträge zur Naturgeschichte des Seriema [Dicholophus cristatus]. < *Abhandl. d. Naturf. Gesellsch. zu Halle*, Bd. i, Quart. i, 1853, pp. 11–52, 2 Tafln. (Auch besonders gedruckt, Halle, Schmidt, 1854. 4to.)

Nicht mir zugänglich.—Titel aus Carus & Engelmann. Cf. *J. f. O.*, 1854, pp. 67, 68.

1853. NITZSCH, C. L. Vergleichung des Skelets von Dicholophus cristatus mit dem Skelettypus der Raubvögel, Trappen, Hühner und Wasserhühner. < *Abhandl. d. Naturf. Gesellsch. zu Halle*, Bd. i, Quart. i, 1853, pp. 53–58.

Nicht mir selbst zugänglich.—Vergl. Sund., *Tent.*, 1873, p. 111; Parker, *M. Micr. Journ.*, 1873, p. 45.

1854. CABINIS, J. Abhandlungen der Naturforschenden Gesellschaft zu Halle; I. Band, I. Quartal. < *J. f. O.*, ii, 1854, pp. 67, 68.

Grösstentheils eine Notiz über Burmeister's ,, Beiträge zur Naturgeschichte des Seriema."

1857. BARRON, C. Note on the Osteology of Cariama [Dicholophus cristatus]. < *Zoologist*, xv, 1857, p. 5428.

1860. HARTLAUB, G. On a New Form of Grallatorial Bird nearly allied to the Cariama (Dicholophus cristatus). < *P. Z. S.*, xxviii, 1860, pp. 334–336.

Dicholophus burmeisteri. See Burm., *Reise*, 1861, p. 66.

1860. HARTLAUB, G. On a [lately] New Form of Grallatorial Bird nearly allied to the Cariama (Dicholophus cristatus). < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, pp. 451, 452.

D. burmeisteri. From *P. Z. S.*, June 26, 1860, pp. 334–336.

1872. GÜNTHER, A. Note on a Deformed Example of Cariama [Dicholophus] cristata. < *Ann. Mag. Nat. Hist.*, 4th ser., x, 1872, pp. 67, 68.

Palameideidæ.

1797. Geoffroy St.-Hilaire, É. Sur les genres Psophia et Palamedea de Linné. < *Millin, Magas. Encycl.*, iii, iv, 1797, pp. 10–12; *Bull. Sc. Soc. Philom.*, i, ii, 1797, pp. 50, 51.

Pas vu moi-même—le titre tiré de la *Bibl.* de Carus et Engelmann.

1842. Martin, W. [Notes on the Habits of the Horned Screamer (Palamedea cornuta, Linn.)] < *P. Z. S.*, x, 1842, pp. 15, 16.

1843. Martin, W. [Zur Lebensweise von Palamedea cornuta.] < *Froriep's Neue Notizen*, xxv, No. 545, 1843, pp. 259–261.

Not seen. From *P. Z. S.*, 1842, pp. 15, 16.

1845. Gray, G. R. [Chauna derbiana, sp. n.] < *Gray & Mitch. Gen. B.*, Jan., 1845, pl. 160.

1863. Parker, W. K. On the Systematic Position of the Crested Screamer (Palamedea chavaria). < *P. Z. S.*, xxxi, 1863, pp. 511–518.

"Probably one of the nearest relatives of the marvellous *Archæopteryx*."

1863. Sclater, P. L. [On Chauna "chavaria" from New Grenada, afterward C. nigricollis.] < *P. Z. S.*, 1863, pp. 377, 378.

Not a separate paper. See *P. Z. S.*, 1864, p. 74.

1863. Sclater, P. L. [On Chauna "derbiana", afterward C. nigricollis.] < *Illustrated London News*, Oct. 3, 1863, fig.

Not seen. The bird called *C. chavaria* in *P. Z. S.*, 1863, p. 377, and here figured as *C. derbiana*, afterward became type of *C. nigricollis*, *P. Z. S.*, 1864, p. 75.

1864. Crisp, E. On the Visceral Anatomy of the Screamer (Chauna chavaria [nigricollis]). < *P. Z. S.*, Jan. 12, 1864, pp. 14–16.

Also on the history and habits of the species. The bird here described is said to be that afterward named *C. nigricollis* by Sclater, *tom. cit.*, p. 75, pl. xi, = *derbiana*.

1864. Parker, W. K. On the Systematic Position of the Crested Screamer [Palamedea chavaria]. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, pp. 144–150.

From *P. Z. S.*, Dec. 8, 1863, pp. 511–518.

1864. Sclater, P. L. On the Species of the Genus Chauna. < *P. Z. S.*, xxxii, 1864, pp. 74–76, pl. xi.

The writer here distinguishes three spp. of the genus—*CC. chavaria*, *derbiana*, and *nigricollis*, sp. n., p. 75, pl. xi; the latter being that called *C. derbiana* in *Illust. Lond. News*, Oct. 3, 1863, and *C. chavaria* in *P. Z. S.*, 1863, p. 377, and 1864, p. 14. See *P. Z. S.*, 1866, p. 369.

1866. Moore, T. J. On the Habitat of the Derbyan Crested Screamer (Chauna derbiana, G. R. Gray). < *P. Z. S.*, xxxiv, 1866, pp. 368, 369.

Probably the "low and swampy parts of New Granada."

1866. Sclater, P. L. Note on Chauna nigricollis. < *P. Z. S.*, xxxiv, 1866, pp. 369, 370.

Here finally identified with *C. derbiana*.

1866. Sclater, P. L. [Remarks upon exhibition of a specimen of Chauna derbiana from Trinidad.] < *P. Z. S.*, xxxiv, 1866, p. 417.

The "Palamedea cornuta" of Léotaud, *Ois. Trin.*, p. 488, suspected to be this species.

1876. Garrod, A. H. On the Anatomy of Chauna derbiana, and on the Systematic Position of the Screamers (Palamedeidæ). < *P. Z. S.*, Feb. 1, 1876, pp. 189–200, pll. xii–xv, figg. 1–4.

A very important paper, in which the structure of the genus, here largely detailed, is taken as the guide to its classification. The author concludes that the family cannot be kept among the Anserine birds, where Flower had placed it. "In the windpipe and the form of the angle of the jaw, they no doubt closely approach them. In their alimentary canal they are much nearer to *Struthio* and *Rhea* (not *Dromæus* and *Casuarius*) than to any other birds. There is a Ciconine tendency in their myology, whilst their osteology points in no special direction. It seems, therefore, to me that, summing these results, the Screamers must have sprung from the primary avian stock as an independent offshoot at much the same time as did most of the other important families." On the species treated, cf. *P. Z. S.*, 1863, p. 511; 1867, p. 415; 1874, p. 117.

Opisthocomidæ.

1785. SONNINI DE MANONCOUR, C. N. S. Du Sasa [Opisthocomus cristatus], Oiseau de la Guyane. < *Journ. de Physique*, xxvii, 1785, pp. 222–224.

Pas vu moi-même: le titre tiré de la *Bibl.* de Carus et Engelmann.

1787. SONNINI DE MANONCOUR, C. N. S. Ueber den Sasa [Opisthocomus cristatus], einen Vogel aus Guiana. < *Licht. u. Voigt's Magaz.*, 3d ser., iv, 1787, pp. 45–50.

Nicht mir selbst zugänglich: Titel aus Carus und Engelmann, *Bibl.*

1852. DEVILLE, É. Observations faites en Amérique sur les mœurs de différentes espèces d'Oiseaux-Mouches, suivies de quelques notes anatomiques et de mœurs sur l'Hoazin [Opisthocomus cristatus], le Caurale, et le Savacou. < *Rev. et Mag. de Zool.*, iv, 1852, pp. 208–226, pl. 9.

Sur l'organisation et les mœurs de l'Hoazin, pp. 217–222, pl. 9.

1852. DEVILLE, É. Observations faites en Amérique sur les mœurs de différentes espèces d'Oiseaux-Mouches, suivies de quelques Notes sur l'organisation et les mœurs du Caurale, de Savacou et de l'Hoazin [Opisthocomus cristatus]. < *Compt. Rend. de l'Acad. Sci.*, xxxiv, 1852, pp. 652–654.

Extraites par l'auteur. Ici la quatrième et principale partie de ses "Observations," sur l'anatomie de l'Hoazin.

1870. CABANIS, J. [Eier des Opisthocomus cristatus.] < *J. f. O.*, xviii, 1870, pp. 318, 319, pl. i, fig. 3.

1873. PERRIN, J. B. Note on the Myology of Opisthocomus cristatus. < *P. Z. S.*, 1873, p. 685.

1879. GARROD, A. H. Notes on Points in the Anatomy of the Hoatzin (Opisthocomus cristatus). < *P. Z. S.*, Feb. 4, 1879, pp. 109–114, figg. 1, 2, and diagram.

Important. *Opisthocomus* must be either considered Gallinaceous or form a group by itself; hardly possible to include it with *Gallinæ*, though it resembles them closely, as it also does *Cuculidæ*, and is not far removed from *Musophagidæ*.

Eurypygidæ.

1781. [PALLAS, P. S.] Beschreibung der sogenannten surinamischen Sonnen-reygers [Ardea (Eurypyga) helias, sp. n.]. < *Neue Nord. Beitr.*, ii, 1781, pp. 48–54, pl.

Nicht mir selbst zugänglich.

1844. DES MURS, O. Notice et considérations oologiques sur le genre ornithologique Caurale, Ardea [Eurypyga] helias (L.) < *Guér. Mag. de Zool.*, 2e sér., année 1844, Oiseaux, pp. 1–6, pl. 49.

Pl. 49, f. 1, Oeuf de l'*Eurypyga helias*; f. 2, Oeuf de *Rallus variegatus*.

1852. DEVILLE, É. [Quelques notes anatomiques et de mœurs sur le Caurale (Eurypyga helias).] < *Rev. et Mag. de Zool.*, iv, 1852, pp. 222 et suiv.

Formants une partie d'un article plus étendu sur l'Hoazin, etc.

Ciconiidæ.

[Including *Ibis*, *Tantalus*, *Platalea*, etc.]

1630. Schwalbach, J. G. Dissertatio de Ciconiis, Gruibus et Hirundinibus, quo exeunte aestate abvolent et ubi hyement. Spirae. 1630. 4to. pp. 28.
Haud mihi obvia.

1661. Schoock, M. De Ciconiis tractatus. Ed. 2da. Amstelædami. 1661. 12mo. pp. 82.
Mihi incognitus.

1672. Praetorius, J., *præs.*, *resp.* Bruno, F. R. Disputatio de CrotaLJustrJa tepJ DJ teMporJs hospJta oder von des Storchs [Ciconia] Winterquartier. Lipsiæ, recusa 1672. 4to. 6 folia. (Ibid. 1702. 4to. pp. 48.)
Haud mihi obvia.

1679. Lettaw, Eobald a. Dissertatio de Ciconiis earumque proprietatibus. Freyb. 1679. 4to. 1½ folia.
Haud mihi obvia.

1679. Strauss, L., *præs.*, *resp.* Strauss, J. D. Dissertatio de Ciconia. Giessæ. Karger. 1679. 4to. pp. 19.
Haud mihi obvia.

1680. Jacobæus, O. Anatome Ciconiæ. < *Bartholini Acta Hafn.*, v, 1680, pp. 247-249.
Haud mihi obvium.

1683. Peyer, J. C. De Ciconiæ ventre et affinitate quadam cum ruminantibus. < *Ephem. Acad. Nat. Cur.*, Dec. ii, Ann. 2, 1683, 1698, pp. 245-247, pl.
Haud mihi obvius.

1687. Schelhammer, G. C. Ciconiæ Anatome. < *Ephem. Acad. Nat. Cur.*, Dec. ii, Ann. 6, 1687, 1688, pp. 206-208.
Haud mihi obvium.

1688. Schultze, S. De Ciconiæ Vindicta. < *Ephem. Acad. Nat. Cur.*, Dec. i, Ann. 6, 7, 1675-76, 1688, pp. 227, 228.
Haud mihi obvius.

1689. Svederus, M. Ciconia seu Diss. acad. de Jure Antipelargiæ; Præs. M. Svederus, Resp. L. A. Lechander, W. Gotho. Aboae. 1689. 4to. pp. 8, 20.
Haud mihi obvia.

1692. Fogius, D. Dissertatio de Ciconiarum hibernaculis. Praes. Dav. Fogius, resp. Chr. Litzow. Hafneæ. 1692. 4to. pp. 12.
Haud mihi obvia.

1717. Limprecht, J. A. Ciconiæ Anatome. < *Ephem. Acad. Nat. Cur.*, Cent. 5 et 6, 1717, pp. 209-212.
Haud mihi obvia.

1733. ————. [Observation sur l'Ibis blanc, oyseau singulier d'Égypte.] < *Hist. de l'Acad. Roy. des Sci.* pour l'année 1683, i, 1733, pp. 363, 364.

1734. Perrault, C. Description anatomique de quatre Pallettes [Platalea]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. iii, 1734, pp. 22-30, pll. 5, 6.

1734. Perrault, C. Description anatomique d'un Ibis blanc et de deux Cicognes. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. iii, 1734, pp. 58-72, pll. 13, 14.

1752. Müller, Joach. Friedr. Bemerkungen vom Storch [Ciconia]. < *Physikal. Belustiggn.*, ii, 1752, pp. 538, 539.
Mir nicht zugänglich.

1757. **Perrault, C.** Anatomische Beschreibung von vier Löffel- oder Spatelgänsen [Platalea]. < *Abhandl. Königl. Französisch. Akad.*, ii, 1757, pp. 193- ——.

Not seen—title from Giebel. German transl. from *Mém. de l'Acad. Roy. des Sci.*, iii, pt. iii, 1734, p. 22.

1757. **Perrault, C.** Anatomische Beschreibung eines Ibis und zweener Störche. < *Abhandl. Königl. Französisch. Akad.*, ii, 1757, pp. 257- ——.

Not seen—title from Giebel. German transl. from *Mém. de l'Acad. Roy. Paris*, iii, pt. iii, 1734, p. 58.

1798. **Vahl, M.** Om Tantalus Pavoninus, Spalowsky. < *Skrivt. Naturh. Selsk. Kiøbenh.*, iv, Heft ii, 1798, pp. 122–125.

Not seen.

1798. **Vahl, M.** Om Mycteria orientalis. < *Skrivt. Naturh. Selsk. Kiøbenh.*, iv, Heft ii, 1798, pp. 126–132.

Not seen.

1799. **Duméril, G.** Mémoire sur une espèce d'articulation dans laquelle le mouvement des os s'exécute à l'aide d'un ressort, observé sur lès pattes d'un Cicögne [Ciconia alba]. < *Bull. Sci. Soc. Philom.*, ii, An. VII (1799), pp. 4, 5.

Pas vu moi-même.

1800. **Cuvier, G.** Sur l'Ibis des anciens Égyptiens. < *Bull. Sci. Soc. Philom.*, ii, An. VIII (1800), pp. 119- ——.

Pas vu moi-même: le titre tiré de la *Bibl.* de Carus et Engelmann.

1800. **Cuvier, G.** Mémoire sur l'Ibis des anciens Égyptiens. < *Journ. de Phys. Chim. Hist. Nat.*, li, 1800, pp. 184–192, pl.

Parmi les résultats du mémoire, il est constaté par l'auteur que l'Ibis des anciens n'est point l'Ibis de Perrault et de Buffon, qui est un *Tantalus*, ni l'Ibis de Hasselquist, qui est un *Ardea*, ni l'Ibis de Maillet, qui est un Vauteur; mais c'est un *Numenius* ou Courlis qui n'a point encore été nommé, et que Bruce a figuré sous le nom d'abou-hannès. L'auteur le nomme *Numenius ibis* (sp. n., p. 192), albus, capite et collo nudis, remigibus, pennis uropygii elongatis, rostro et pedibus nigris.

Mais on doit ajouter, que l'oiseau ici décrit par l'auteur n'est néanmoins point une espèce du genre *Numenius* des auteurs modernes, de la famille des Scolopacidés, mais véritablement un Ibis.

1800. **Cuvier,** "C." [*i. e.*, G.] Memoir on the Ibis of the Antient Egyptians. < *Tilloch's Philos. Mag.*, viii, 1800, pp. 61–70, pl. iii.

From *Journ. de Physique*, Fructidor, An. VIII. Determined to be a *Numenius*, and called, on p. 70, *Numenius ibis*; description, p. 64. The article is chiefly occupied in bibliographical research, and concludes with the statement that the *Tantalus ibis* of Linnæus comprehended four different species of three genera. The bird is the *Ibis æthiopicus*.

1800. **Shaw, G.** Description of a new Species of Mycteria [senegalensis]. < *Trans. Linn. Soc.*, v, 1800, pp. 32–35, pl. iii.

M. senegalensis, p. 35, pl. 3: with characters, also, of *M. americana* and *M. australis*.

1801. **Cuvier, G.** Sur l'Ibis des anciens Égyptiens. < *Millin, Magas. Encycl.*, vi, pt. i, 1801, pp. 527, 528.

Pas vu moi-même: le titre tiré de Carus et Engelmann.

1802. **Cavanilles, A. J.** De la Ciguëna blanca [Ciconia alba]. < *Anal. Hist. Nat.*, v, No. 15, 1802, pp. 234–244.

Not seen.

1803. **Sartorius, —.** Beobachtungen über die schwarzen Störche [Ciconia nigra]. < *Voigt's Mag.*, vi, 1803, pp. 227–233.

Nicht mir selbst zugänglich: Titel aus Carus und Engelmann.

1804. **Cuvier, G.** Mémoire Sur l'Ibis des Anciens Egyptiens. < *Ann. du Mus. d'Hist. Nat.*, iv, 1804, pp. 116–135, pll. lii, liii (Ibis, pll. i–iii).

Méprises des auteurs modernes—Momies de l'ancien ibis—Description du squelette faite d'après les momies de Thèbes—Determination du véritable Ibis—Comparaison de cet oiseau avec ceux qu'on a confondus avec lui—Description qu' Hérodote a faite—Examen de plusieurs monumens antiques sur lesquels on voit la figure de l'ibis—Origine des erreurs—Preuve offerte par les momies que les ibis mangoient des serpens—Comparaison des plumes trouvées dans les momies avec celle de l'oiseau qu'on a preuvé être l'ibis—Résultat du mémoire.

1804. Cuvier, G.—Continued.

"3° *L'ibis* des anciens n'est point l'ibis de Perrault et de Buffon, qui est un tantalus, ni l'ibis de Hasselquist, qui est un ardea, ni l'ibis de Maillet, qui est un *vauteur ;* mais cèst un numenius ou courlis qui n'a été décrit et figuré au plus que par Bruce sous le nom *d'abou-hannès.* Je le nomme numenius ibis" (p. 134).

Pl. i, squelette de l'Ibis, tiré d'une momie de Thèbes ; pl. ii, L'oiseau, *Numenius ibis*, Cuv. ; pl. iii, Figure copiée sur l'un des Temples de la haute Égypte, et bec d'une momie.

Pour son premier mémoire, et pour une traduction Anglaise, voir 1800, Cuvier, G.

1805. Pearson, J. Some Account of two Mummies of the Egyptian Ibis [æthiopicus], one of which was in a remarkably perfect State. < *Philos. Trans.*, xcv, pt. ii, 1805, pp. 264–271, pl. viii.

Taken by Major Hayes, in 1802–3, from catacombs at Thebes, and described with particularity. The plate, of natural size, shows the position given to the body by the embalmer.

1805. Savigny, J. C. Histoire | Naturelle et Mythologique | de l'Ibis [religiosa]; | Par Jules-César Savigny, | Membre de l'Institut d'Égypte ; | Ornée de six planches gravées par Bouquet, | d'après les dessins de H. J. Redouté et | Barraband. | [Dessin.] | Libycisque vescens ipsa scorpionibus . . . | Phile. | Paris, | Allais, Libraire, quai des Augustins, n°. 39. | — | M. DCCC. V. 1 vol. sm. 8vo. pp. i–xiv, 1–224, pll. i–vi.

This is a celebrated treatise on a very celebrated bird, replete with curious learning upon the natural, mythological, and philological history of the Ibis, gathered by the author as a part of his researches in Egypt. The bird excited much attention about that time; the Baron Cuvier gave his views on the same subject; and quite a literature was soon formed, both as regards the ornithological and the archæological aspects of the case. The present memoir became the occasion of much discussion, and the information it contains is found in various other writings, under different guises.

1805. Vosmaer, A. Histoire Naturelle | du | Courli | Africain [ ]. | Ayant été conservé dans le Museum | De son Altesse Sérenissime Monseigneur le Prince | D'Orange-Nassau. | Par Feu Mr. | A. Vosmaer, | De sa vie Conseiller de S. A. S., Directeur de son Cabinet d'Histoire | Naturelle & des Curiosités, Membre de l'Académie Impériale, | Correspondant de l'Académie Royale des Sciences de Paris, | Membre de celle de Madrid & des Sociétés Litteraires de Flessingue & de Harlem &c. | — | A Amsterdam, chez | J. B. Elwe, | MDCCCV. 4to. pp. 8, pl.

1806. Jomard, —. Observations sur l'Histoire Naturelle et Mythologique de l'Ibis, Ouvrage de J. C. Savigny, Membre de l'Institut d'Égypte. [Par M. Jomard.] n. d. n. p. [Paris. Delance. 1806.] 1 vol. 8vo. pp. 27.

' Extraites du Magasin Encyclopédique, numéro de Février 1806.

18—. Rozière, —. De l'Ibis Égyptien. [Par Rozière.] 8vo. pp. 22.

Extrait du ———? À propos de l'ouvrage de M. J. C. Savigny, intitule: *Hist. Nat. et Mythol. de l'Ibis:* donnant les principaux résultats du travail de M. Savigny, en y joignant quelques observations.

1817. Montagu, G. Some Remarks on the Natural History of the Black Stork [Ciconia nigra], for the first time captured in Great Britain. < *Trans. Linn. Soc.*, xii, pt. i, 1817, pp. 19–23.

1817. Ord, G. An Account of an American Species of the Genus Tantalus or Ibis. < *Journ. Acad. Nat. Sci. Phila.*, i, 1817, pp. 53–57.

Identified, with a query, with *T. mexicanus* Gm. This is probably the earliest special notice of the Glossy Ibis (*Plegadis falcinellus*) in North America.

1822. "L'un de vos Auditeurs à l'Athénée." Au rédacteur du Journal de Physique. < *Journ. de Phys. Chim. Hist. Nat.*, xciv, 1822, p. 320.

Quelques faits concernants les mœurs des Cicognes.

1823. Montagu, G. Einige Bemerkungen über die Naturgeschichte des schwarzen Storchs, Ardea [Ciconia] nigra Linn., den man vor kurzem zum erstenmal in England angetroffen hat. < *Oken's Isis*, Jahrg. vii, 1823, (*Litter. Anzeig.*), pp. 539–543.

Aus d. *Trans. Linn. Soc. Lond.*, xii, pt. i, 1817, pp. 19–23.

1825. ADAM, J. A description of the Ciconia Argala or Adjutant Bird of Bengal. < *Trans. Med. Phys. Soc. Calcutta*, i, 1825, pp. 240–248.
Not seen—title from *Roy. Soc. Cat.* It is reprinted in several places. See below.

1826. ADAM, J. Description of the Ciconia Ardgala [sic], or Adjutant Bird. <*Edinb. New Philos. Journ.*, i, 1826, pp. 327–332.
From *Trans. Med. and Phys. Soc. Calcutta*, i, 1825, pp. 240–248. Description followed by extended account of habits. Also in *Froriep's Notizen*, xv, No. 328, 1826, pp. 307–309, and *Isis*, 1832, p. 685.

1826. [TEMMINCK, C. J., *and* LAUGIER, M.] Notice sur les Cigognes, et particulièrement sur les trois grandes espèces qui fournissent à la toilette des dames les plumes déliées dites Marabou. < *Ann. des Sci. Nat.*, vii, 1826, pp. 91–96.
Réproduite de la 64e livraison des *Planches Coloriées*.

1826. ————. Ibis noir d'Islande. < *Féruss. Bull.*, 2e sect., viii, 1826, p. 115.
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Though ostensibly dating Dec., 1864, this article cannot have been published before 1865, for the end of it is a part of the same sheet of paper (signature 29) that begins the next article, dated May, 1865.

The article treats of *Ciconia* (7 spp.), *Mycteria* (4 spp.), *Anastomus* (2 spp.), *Tantalus* (4 spp.), and *Platalea* (6 spp.), represented in the Leyden Museum by 152 specimens.

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1873. OLFERS, E. V. (Die bewachsenen Storchnester). <*Zool. Gart.*, xiv, 1874, p. 476.

1873. ROPE, G. T. White Stork [Ciconia alba] in Suffolk. <*Zoologist*, 2d ser., viii, 1873, p. 3580.

1873. SWINHOE, R. On the Rosy Ibis of China and Japan (Ibis nippon). <*Ibis*, 3d ser., iii, 1873, pp. 249–253.

Biographical, descriptive, and anatomical notes.

1873. SWINHOE, R. On the White Stork of Japan. <*P. Z. S.*, 1873, pp. 512–514.

Ciconia boyciana, sp. n., p. 513.

1874. ANON. White Stork [Ciconia alba] near Berwick-on-Tweed. <*Zoologist*, 2d ser., ix, 1874, p. 4199.

1874. ANON. Eine neue weisse Storchenart [von Japan von Savuchon beschrieben]. <*Aus der Natur.*, lxiv, oder n. F., lii, 1874, p. 204.

1874. BROUGHTON, H. T. Spoonbill [Platalea leucorodia] in Guernsey. <*Zoologist*, 2d ser., ix, 1874, pp. 3835, 3836.

1874. COUES, E. Shooting Wood Ibises [Tantalus loculator]. <*Am. Sportsman*, iv, 1874, p. 225.

Popular account of his experiences with these birds at Fort Yuma, California.

1874. SCLATER, P. L. [Report on addition of Ciconia boyciana to the Society's Menagerie.] <*P. Z. S.*, xlii, 1874, pp. 1, 2, pl. 1.

Cf. *P. Z. S.*, 1873, p. 513.

1874. SCLATER, P. L. [Remarks upon exhibition of a skin of Ciconia boyciana.] <*P. Z. S.*, xlii, 1874, pp. 306, 307.

Cf. *P. Z. S.*, 1873, p. 513; 1874, p. 2.

1875. GARROD, A. H. On the Form of the Trachea in certain Species of Storks and Spoonbills. <*P. Z. S.*, Apr. 6, 1875, pp. 297–301, figg. 1, 2.

Fig. 1, singularly complicated trachea of *Tantalus ibis*; f. 2, bifurcation of bronchi in neck of *Platalea ajaja*. Important conclusions, on anatomical grounds, of the relationships of *Ibis*, *Platalea*, *Tantalus* and *Ciconia*—the two former well distinguished from the two latter.

1876. ALLEN, J. A. Occurrence of the Wood Ibis [Tantalus loculator] in Pennsylvania and New York. <*Bull. Nutt. Ornith. Club*, i, No. iv, Nov., 1876, p. 96.

1876. ANON. [EDITORIAL.] [Wood Ibis (Tantalus loculator) in Rensselaer County, New York.] <*Rod and Gun*, viii, July 29, 1876, p. 280.

1876. Coues, E. Range of the Bay Ibis [Ibis falcinellus, in Oregon]. < *Am. Nat.*, x, No. 1, Jan., 1876, p. 48.

1876. Gurney, J. H., Jr. Black Stork [Ciconia nigra] at Lydd, in Kent. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4764.

1876. Gurney, J. H., Jr. Glossy Ibis [Ibis falcinellus]. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4844.

1876. Hudson, W. H. Note on the Spoonbill [Platalea sp.] of the Argentine Republic. < *P. Z. S.*, Jan. 4, 1876, p. 15.

Probably distinct from *P. ajaja*; not named.

1876. Webster, F. S. The Wood Ibis [Tantalus loculator] at Troy [N. Y.]. < *Forest and Stream*, vi, July 20, 1876, p. 387.

1877. Elliot, D. G. A Review of the Ibidinæ, or Subfamily of the Ibises. < *P. Z. S.*, June 5, 1877, pp. 477–510, pl. li.

An important memoir, not to be overlooked even by those who may disagree with many of the author's conclusions. It is based upon the material in the Paris Museum and in the Salvin-Godman and Shelley collection. It gives the leading literature of the subfamily, the systematic position, the geographical distribution, with more or less descriptive and critical matter under each species, with a very copious synonymy.

The author recognizes 25 spp. of Ibises, which he disposes in 19 genera, three of which are new. Most of these genera were founded by Wagler in 1832 or by Reichenbach in 1851 (or thereabouts—Gray gives 1853), as appears from the following chronological enumeration, in which the 19 adopted by Elliot are asterisked:—

1800. *Numenius*, Cuv. Type, *Tantalus æthiopicus*, Lath. [Preoccupied.]
*1803. *Falcinellus*, Bechst., *Gem. Nat.* Type, *Tantalus falcinellus*, L. [Not so.]
*1810. *Ibis*, Savigny, *Ois. Égypt.*, p. 392. Type, *Tantalus æthiopicus*, Lath.
[1829. *Plegadis*, Kaup, *Sk. Ent. Eur.*, Theirw., p. 82.]
1832. *Tantalides*, Wagl., *Isis*, p. 1231. Type, *Tantalus falcinellus*, L.
*1832. *Theristicus*, Wagl., *Isis*, p. 1231. Type, *Scolopax caudatus*, Bodd.
*1832. *Geronticus*, Wagl., *Isis*, p. 1232. Type, *Tantalus calvus*, Bodd.
*1832. *Harpiprion*, Wagl., *Isis*, p. 1232. Type, *Tantalus cayennensis*, Gm.
*1832. *Eudocimus*, Wagl., *Isis*, p. 1232. Type, *Tantalus ruber*, L.
*1832. *Cercibis*, Wagl., *Isis*, p. 1232. Type, *Ibis oxycerca*, Spix.
*1832. *Phimosis*, Wagl., *Isis*, p. 1233. Type, *Ibis infuscata*, Licht.
1842. *Threskiornis*, Gray, *App. List G. of B.*, p. 13. Type, *Tantalus æthiopicus*, Lath.
[1844. *Pseudibis*, Hodgs.]
*1851. *Comatibis*, Reich., *Nov. Syn. Av.*, figg. 2383, 2384. Type, *Ibis comata*, Rüpp.
*1851. *Nipponia*, Reich., *ibid.*, fig. 538. Type, *Ibis nippon*, Temm.
*1851. *Molybdophanes*, Reich., *ibid.*, fig. 524. Type, *Ibis cærulescens*, Vieill.
*1851. *Lophotibis*, Reich., *ibid.*, fig. 637. Type, *Tantalus cristatus*, Bodd.
*1851. *Inocotis*, Reich., *ibid.*, fig. 533. Type, *Ibis papillosa*, Temm.
*1851. *Carphibis*, Reich., *ibid.*, figg. 1009, 1010. Type, *Ibis spinicollis*, Jam.
1851. *Guara*, Reich., *ibid.*, figg. 525, 526, 527. Type, *Tantalus ruber*, L.
1851. *Leucibis*, Reich., *ibid.*, figg. 2385, 2825, 2826. Type, *Tantalus albus*, L.
*1851. *Bostrychia*, Reich., *ibid.*, figg. 1011. Type, *Ibis carunculata*, Rüpp.
*1855. *Hagedashia*, Bp., *Consp. Av.*, p. 152. Type, *Tantalus hagedash*, Lath.
*1877. *Graptocephalus*, Elliot, *P. Z. S.*, p. 483. Type, *Geronticus davisoni*, Hume.
*1877. *Thaumatibis*, Elliot, *P. Z. S.*, p. 483. Type, *Ibis gigantea*, Oustalet.
*1877. *Lampribis*, Elliot, *P. Z. S.*, p. 483. Type, *Ibis olivacea*, Du Bus.

His species are as follows:—

1. *Ibis æthiopicus*. 2. *Ibis bernieri*. 3. *Ibis melanocephala*. 4. *Thaumatibis gigantea*. 5. *Graptocephalus davisoni*. 6. *Carphibis spinicollis*. 7. *Inocotis papillosus*. 8. *Comatibus comata*. 9. *Geronticus calvus*. 10. *Phimosus infuscatus*. 11. *Nipponia nippon*. 12. *Cercibis oxycerca*. 13. *Theristicus caudatus*. 14. *Lophotibis cristata*. 15. *Hagedashia chalcoptera*. 16. *Bostrychia carunculata*. 17. *Harpiprion cayanensis*. 18. *Molybdophanes cærulescens*. 19. *Falcinellus igneus*. 20. *F. guarauna*. 21. *F. ridgwayi*. 22. *F. thalassinus*, Ridgway [N. B.—This is the young of No. 20]. 23. *Lampribis olivacea* (plate li). 24. *Eudocimus albus*. 25. *E. ruber*.

Several writers hastened to show that "*Falcinellus* Bechst." is not available, and that the name *Plegadis* Kaup, 1829, must be used for this genus.

1877. Garrod, A. H. Note on an Anatomical Peculiarity in certain Storks [Ciconiidæ]. < *P. Z. S.*, Nov. 6, 1877, pp. 711–712.

Storks differ in the ambiens muscle.

1877. LENTE, W. K. A visit to a nesting place [Lake Harney, Florida] of the wood ibis—Tantalus Loculator. < *Forest and Stream,* Nov. 29, 1877, p. 327.

1877. REICHENOW, A. Systematische Uebersicht der Schreitvögel (Gressores), einer natürlichen, die Ibidae, Ciconidae, Phoenicopteridae, Scopidae, Balaenicipidae und Ardeidae umfassenden Ordnung. < *J. f. O.,* Apr., 1877, pp. 113–171; July, 1877, pp. 225–277.

Dieses Buch befindet sich beim Buchbinder und ist mir deshalb nicht zugänglich.

1877. SCLATER, P. L., *and* FORBES, A. W. On the Nesting of the Spoonbill [Platalea leucorodia] in Holland. < *Ibis,* 4th ser., i, Oct., 1877, pp. 412–416.

Interesting narrative of observations.

1877. [SCLATER, P. L., *and* SALVIN, O.] Oustalet on new Species of Ibis [gigantea, harmandi]. < *Ibis,* 4th ser., i, Oct., 1877, pp. 486, 487.

Notices of papers in *Bull. Soc. Philom.,* 7e sér., i, 1877, pp. 25–30.

1878. ALLEN, J. A. The Glossy Ibis [Ibis falcinellus] in Massachusetts. < *Bull. Nutt. Ornith. Club,* iii, No. 3, July, 1878, p. 152.

1878. A[LLEN], J. A. Elliot's Review of the Ibidinæ, or Ibises. < *Bull. Nutt. Ornith. Club,* iii, No. 4, Oct., 1878, p. 182.

Short notice of the paper in *P. Z. S.,* 1877, pp. 477–510.

1878. CORY, C. B. The Glossy Ibis [Ibis falcinellus] in Massachusetts. < *Bull. Nutt. Ornith. Club,* iii, No. 3, July, 1878, p. 152.

Note by J. A. Allen on the occurrence of two other individuals on Cape Cod at about the same time. Foot-note by the same on the correct generic name of the bird, which is stated to be *Plegadis,* Kaup. (*Ibis,* 4th ser., ii, Jan., 1878, p. 112.)

1878. GARROD, A. H. On the Trachea of Tantalus loculator and of Vanellus cayennensis. < *P. Z. S.,* May 21, 1878, pp. 625–629, figg. 1, 2.

The parts named of each of these species are figured on the woodcuts in the text.

1878. RIDGWAY, R. Synopsis of the American Sub-families and Genera of Ciconiidæ. < *Bull. U. S. Geol. and Geogr. Surv. Terr.,* iv, No. 1, Feb. 5, 1878, pp. 248–251, fig.

A subhead of a much more extensive paper, "Studies of the American Herodiones," &c., *ibid.,* pp. 219–251. The American *Ciconiidæ* are divided into two subfamilies, *Ciconiinæ* and *Tantalinæ,* of the former of which are given two genera, *Mycteria* and *Euxenura,* g. n., p. 249 (= *Dissoura* Cab., 1850). For the full paper, see under ARDEIDÆ.

1878. SCLATER, P. L. Note on the Breeding of the Sacred Ibis [æthiopica] in the Zoological Society's Gardens. < *Ibis,* 4th ser., ii, Oct., 1878, pp. 449–451, pl. xii.

The plate shows the young and the egg.

1878. SCLATER, [P. L.] [Remarks on living examples of Ciconia maguari and C. episcopus.] < *P. Z. S.,* June 4, 1878, p. 633.

On the validity of the genus *Euxenura* Ridgway, showing that Cabanis had proposed *Dissoura* in 1850 for the same group, and calling the species *Dissura maguari* and *D. episcopus.*

1878. [SCLATER, P. L., *and* SALVIN, O.] D. G. Elliot and A. Reichenow on the Ibises [Ibidinæ]. < *Ibis,* 4th ser., ii, Jan., 1878, pp. 111–113.

Review of Elliot, *P. Z. S.,* 1877, p. 477, *seqq.,* and Reichenow, *J. f. O.,* 1877, pp. 113, *seqq.* The reviewers criticize the classification and nomenclature of both authors very freely. As regards the much be-named Glossy Ibis, they show that there is no such genus as *Falcinellus* Bechst., so often employed; and that *Plegadis* Kaup, 1829, seems available for *Ibis falcinellus,* other synonyms of which are *Tringa! autumnalis* of Hasselq., *Scolopax! rufa* of Scopoli, and *Numenius! igneus* of Gm., 1771 and 1778.

1879. COUES, E. Letters on Ornithology. No. 24.—The Wood Ibis. [Tantalus loculator.] < *The Chicago Field,* June 14, 1879.

From the "American Sportsman", iv, 1854, p. 225, *q. v.*

1879. MERRILL, J. C. A Nesting Place of the White-faced Glossy Ibis (Plegadis guarauna). < *The Oölogist,* v, No. 2, Aug., 1879, p. 11.

Quoted from p. 163 of his paper in *Proc. U. S. Nat. Mus.,* i, 1878, pp. 118–173.

Ardeidæ.

1673. Jacobaeus, O. [Canalis alimentorum Ardeae cum duplici ductu pancreatico.] < *Bartholini Acta Hafn.*, ii, 1673, p. 242.
Non nobis obvius: titulus e Caro et Engelmanno.

1683. Muralt, J. de. Ardeae [Botauri] stellaris examinatio. < *Ephem. Acad. Nat. Cur.*, Dec. ii, Cent. Ann. ii, 1683, (1698), pp. 60, 61.
Haud mihi obvia: titulus e Caro et Engelmanno.

1727. Valentini, M. B. Ardeae [Botauri] stellaris anatome. < *Act. Acad. Cæs. Leop. Car. Nat. Cur.*, i, 1727, pp. 283, 284.
Non mihi obvium: titulus e Caro et Engelmanno.

1776. Otto, B. C. Anmärkningar om Rötdrommen, Ardea Stellaris. < *Physiogr. Sällsk. Handl.*, i, 1776, pp. 305–310.
Not seen.

1781. [Wurmb, F. van.] De kleine witte Reiger van 't Eiland Java. < *Verh. Batav. Genootsch.*, iii, 1781, p. 376.
This is the original date: there is a reissue of the same *Verhandlungen* much later (1824); I have only seen the latter.

1782. Mattuschka, H. G., *Graf von.* Ueber die Fischreiher [Ardea cinerea]. < *Schrift. d. Berlin. Ges. nat. Fr.*, iii, 1782, pp. 411–414.
Nicht mir selbst zugänglich: Titel aus Carus und Engelmann.

1792. Bosc, L. Ardea gularis. < *Actes de la Soc. d'Hist. Nat. de Paris*, i, pte. i, 1792, p. 4, pl. 2.
Pas vue moi-même.

1804. Afzelius, A. Ardea atricapilla En ny Fogel ifrån Sierra Leone, dår funnen och beskrifven, . . . < *Kongl. Vetens. Acad. Nya Handl.*, xxv, 1804, pp. 264–268.

1824. [Wurmb, F. van] De Kleine witte Reiger van het eiland Java. < *Verhandl. Batav. Genootsch. Kunsb. en Wetens.*, Tweede Druk, iii, 1824, pp. 239–242.
Orig. ed. of these *Verhandlungen*, this vol., 1781.

1829. Anon. The Great American Bittern. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 64.
Botaurus leutiginosus—or *Nyctiardea gardeni?* Note of a supposed power of emitting light from its breast.

1829. Rennie, J. [On the Heather-bluiter (Ardea [Botaurus] stellaris, Linn.) of the Scotch.] < *Loudon's Mag. Nat. Hist.*, i, 1829, p. 495.

1829. "R. A." Feet and Legs of the common Heron [Ardea cinerea]. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 206.
With note on the probably luminous powder-down feathers of the breast, and their purpose.

1831. Bland, M. Habits of the Bittern [Botaurus stellaris]. < *Loudon's Mag. Nat. Hist.*, iv, 1831, pp. 464, 465.

1831. Brehm, C. L. Eine naturgeschichtliche Anfrage. < *Oken's Isis*, Bd. xxiv, 1831, p. 273.
Funken aus Reiherfedern.

1831. Yarrell, W. [On the Identity of Ardea gardeni and A. nycticorax.] < *P. Z. S.*, i, 1831, p. 27.

1833. Chalmers, M. Acts of the Heron and of the Peahen. < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 515, 516.

1834. "J. G." A common Heron [Ardea cinerea]. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 513, 514.
On disgorging of the contents of the stomach when disturbed.

1835. "O." The Night Heron (A'rdea Nyctícorax L.). < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 509, 510.

1835. WATERTON, C. Notes on the Habits of the Heron [Ardea cinerea]. < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 453–457; editorial note, pp. 457, 458.

1835. WATERTON, C. Bemerkungen über die Lebensweise des Reihers [Ardea cinerea]. < *Froriep's Notizen*, xlvi, No. 992, 1835, pp. 17–20.
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1836. VENTRIS, E. Should the Egret (Ardea Garzetta) be classed among British Species of Birds? < *Loudon's Mag. Nat. Hist.*, ix, 1836, pp. 319–322.

1837. DU BUS DE GHISIGNIES, V. B. Description d'une nouvelle espèce de Héron [Ardea calceolata]. < *Bull. Acad. Brux.*, iv, 1837, pp. 39–41, pl. (*L'Institut*, v, No. 217, 1837, pp. 227, 228.)
Pas vue moi-même.

1837. DU BUS [DE GHISIGNIES, V. B.] Neuer Reiher [Ardea calceolata] aus Guinea: < *Oken's Isis*, Bd. xxx, 1837, p. 842.
Aus *L'Institut*, 1837, No. 217, pp. 227, 228.

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1839. STRICKLAND, A. Upon the claims of the Ardea alba—Great Egret, or White Hearn, to be considered a British bird. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, pp. 30–32.
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1839. STRICKLAND, A. On the Ardea Alba [as a British Bird]. < *Rep. Brit. Assoc. Adv. Sci. for* 1838, vii, 1839, (*Misc. Comm.*), pp. 106, 107.

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pp. 279–283, kurze Beschreibung der Nester und Eyer der erwähnten Vögel—*Ardea cinerea*, *A. purpurea*, *A. nycticorax*, *A. garzetta*, sowie *Carbo cormoranus*.

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1843. GOULD, J. [Description of Ardea rectirostris, sp. n.] < *P. Z. S.*, xi, 1843, p. 22.

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1844. DUNCAN, R. D. Correction of a previous [Zool. 384] error in describing the colour of the Heron's Egg. < *Zoologist*, ii, 1844, p. 575.

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1844. HORE, W. S. Note on the occurrence of the Night Heron [Nyctiardea europæus] in Cornwall. < *Zoologist*, ii, 1844, p. 575.

1846. CASSIN, J. Note on an Instinct probably possessed by the Herons, (Ardea, Linn.) < *Proc. Acad. Nat. Sci. Phila.*, iii, 1846, p. 137.
Instinctive knowledge of refraction, enabling them to spear their prey in the water.

1846. COOPER, J. Occurrence of the American Bittern [Botaurus lentiginosus] near Fleetwood. < *Zoologist*, iv, 1846, p. 1248.

1846. FRERE, H. T. Anecdote of Herons fighting. < *Zoologist*, iv, 1846, pp. 1212, 1213.

1846. RODD, E. H. Occurrence of the Purple Heron [Ardea purpurea] near Penzance. < *Zoologist*, iv, 1846, p. 1331.

1846. THOMPSON, W. Notice of an American Bittern, Botaurus lentiginosus, Mont. (sp.), obtained in Ireland. < *Ann. Mag. Nat. Hist.*, xvii, 1846, pp. 91–94.

1847. Plomley, F. Occurrence of the Purple Heron [Ardea purpurea] near Lydd. < *Zoologist*, v, 1847, p. 1777.

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1848. Ellman, J. B. Occurrence of the Bittern (Botaurus stellaris) at Battel. < *Zoologist*, vi, 1848, p. 2023.

1848. Ellman, J. B. Occurrence of the Little Bittern (Ardea [Ardetta] minuta) at Ewhurst and Ledlescomb, Sussex. < *Zoologist*, vi, 1848, p. 2147.

1848. Gould, J. Description of a new Heron [Ardea leucophæa]. < *P. Z. S.*, xvi, 1848, pp. 58, 59.

1848. Johnson, F. W. Occurrence of the Common Bittern [Botaurus stellaris] at Ipswich. < *Zoologist*, vi, 1848, p. 2066.

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1849. Bird, W. F. W. Occurrence of the Common Bittern (Ardea [Botaurus] stellaris) in Norfolk. < *Zoologist*, vii, 1849, p. 2421.

1849. Bulteel, C. J. C. Occurrence of eight Night Herons (Nycticorax ardeola) in Devonshire. < *Zoologist*, vii, 1849, p. 2528.

1849. Ellman, J. B. Occurrence of the Great White Heron ([Herodias alba]?) in Romney Marsh. < *Zoologist*, vii, 1849, p. 2419.

1849. Frere, H. T. Occurrence of the Little Bittern (Ardea [Ardetta] minuta) at South Walsham. < *Zoologist*, vii, 1849, pp. 2498, 2499.

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From *P. Z. S.*, May 9, 1848, p. 58.

1849. Hewett, W. The Heronry in Coley Park, Berks. < *Zoologist*, vii, 1849, pp. 2420, 2421.

1849. Morris, F. O. Occurrence of the Purple Heron (Ardea purpurea) near Driffield. < *Zoologist*, vii, 1849, p. 2591.

1849. Morris, B. R. Note on the Heron (Ardea cinerea) as an article of Food. < *Zoologist*, vii, 1849, p. 2353.

1849. Rodd, E. H. Occurrence of the Night Heron [Nyctiardea grisea] at Scilly. < *Zoologist*, vii, 1849, p. 2498.

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1849. Smith, James, *Rev.* Occurrence of the Purple Heron (Ardea purpurea) in Aberdeenshire. < *Zoologist*, vii, 1849, pp. 2497, 2498.

1849. Smith, James, *Rev.* Occurrence of the Little Bittern (Ardea [Ardetta] minuta) at Yarmouth. < *Zoologist*, vii, 1849, p. 2528.

1849. Webster, T. Occurrence of the Little Bittern [Ardetta minuta] near Manchester. < *Zoologist*, vii, 1849, p. 2499.

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1850. Peacock, E., Jr. Habits of the Heron (Ardea cinerea). < *Zoologist*, viii, 1850, pp. 2879.

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1875. "W. H. C." The Sensitive Sight and Hearing of the Great Blue Heron [Ardea herodias]. < *Oölogist*, i, 1875, p. 52.

1876. Abbott, C. C. The Occurrence of White Egrets [Garzetta candidissima] at Trenton, New Jersey. < *Am. Nat.*, x, No. 8, 1876, pp. 473–476.

Full account of the occurrence there of these and other Herons, with much reflection on the subject.

1876. Audubon, J. J. The Great Blue Heron. Ardea herodias,—Linn. < *Oölogist*, i, 1875, pp. 76–78, fig. (to be cont.)

Extract from his *Ornith. Biogr.*

1876. Brewster, W. Singular food of the Least Bittern [Ardetta exilis]. < *Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, p. 76.

Stomach "fairly crammed with clean white *cotton wool.*"

1876. Fisk, W. H. A Fight with a Heron. < *Forest and Stream*, vii, Nov. 16, 1876, p. 230.

Combat between a dog and a Heron, copied from the London (England) "Field"; with editorial remarks upon a similar occurrence witnessed in Minnesota, U. S.

1876. Gurney, J. H., Jr. American Bittern [Botaurus lentiginosus] in Dumfriesshire. < *Zoologist*, 2d ser., xi, May, 1876, p. 4929.

1876. Hersey, J. C. The Little White Egret [Garzetta candidissima] in Colorado. *Am. Nat.*, x, 1876, p. 430.

1876. [Hudson, H.] Notes on a South-American Heron [Ardetta involucris]. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4928, 4929.

From *P. Z. S.*, 1875, pp. 623–631.

1876. [Lowell, J. R.] Night Herons [Nyctiardea grisea nævia, at Boston in the winter.] < *Forest and Stream*, vi, Mar. 9, 1876, p. 68.

1876. Lumsden, J. American Bittern [Botaurus lentiginosus] in Islay. < *Zoologist*, 2d ser., ii, Feb., 1876, p. 4801.

From the London 'Field' of Jan. 22, 1876.

1876. Mathew, M. A. Herons at Bishop's Lydeard. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5046.

1876. Mathew, M. A. Little Bittern [Ardetta minuta] at Plymouth. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5046.

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1878. A[llen], J. A. Ridgway's Studies of the American Herodiones. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 182, 183.

Review of the paper in *Bull. U. S. Geol. Surv. Terr.*, iv, pp. 219–251, Feb. 5, 1878.

1878. A[llen], J. A. Reichenow's Review of the Herons and their Allies. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 183–185.

Extended review of the ,,Systematische Uebersicht der Schreitvogel," in: *Cab. Journ. für Ornith. Jahrg.*, xxv, Apr.–July, 1877, pp. 113–171, 225–278.

1878. [Garlick, T.] A Large Heronry [of Ardea herodias]. < *Forest and Stream*, ix, Jan. 17, 1878, p. 451.

1878. "H. W. T. E." Booming of the Bittern [Botaurus lentiginosus]. < *Forest and Stream*, x, April 25, 1878, p. 216.

1878. Lockwood, S. The Night Herons [Nyctiardea grisea nævia], and their Exodus. < *Am. Nat.*, xii, No. 1, 1878, pp. 27–35.

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1878. Ridgway, R. Studies of the American Herodiones.—Part I.—Synopsis of the American Genera of Ardeidæ and Ciconiidæ; including Descriptions of three New Genera, and a Monograph of the American Species of the Genus Ardea, Linn. < *Bull. U. S. Geol. and Geogr. Surv. Terr.*, iv, No. 1, Feb. 5, 1878, pp. 219–251, fig.

No second Part of the "Studies" has appeared.

Synonymy and diagnosis of the "order" *Herodiones*—Altricial Grallatores, p. 219.—Synopsis of the American Herodionine families, p. 220; there are five: *Cancromidæ*, *Ardeidæ*, *Ciconiidæ*, *Ibididæ*, *Plataleidæ*.—Synopsis of the American genera of *Ardeidæ*, p. 223; these sixteen: *Ardea*, *Herodias*, *Garzetta*, *Dichromanassa* (g. n., p. 224), *Hydranassa* (Bd., 1858), *Florida*, *Butorides*, *Syrigma* (g. n., p. 224), *Pilherodius*, *Nyctiardea*, *Nyctherodius*, *Agamia*, *Tigrisoma*, *Zebrilus*, *Botaurus*, *Ardetta*.—Monograph of the American species of the genus *Ardea*, p. 226; four species: *A. occidentalis* Aud. (to which *A. wurdemanni* Bd. is referred), *A. herodias*, *A. cinerea* (of Europe), *A. cocoi*; very full accounts of which, with copious synonymy, are given.—Description of two new American genera of *Ardeidæ*, p. 246, being *Dichromanassa* and *Syrigma*, as above given.—Synopsis of the American subfamilies and genera of *Ciconiidæ*, p. 248; the family being divided into *Ciconiinæ* and *Tantalinæ*, with *Euxenura* (g. n., p. 249 = *Dissoura* Cab., 1850) and *Mycteria* as genera. (See *P. Z. S.*, 1878, p. 633, and *Ibis*, 1878, pp. 475–477.

1878. Rowley, G. D. On Sussex Heronries. < *Rowl. Orn. Misc.*, iii, pt. xii, Jan., 1878, pp. 65–74, pll. lxxxix, xc.

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1878. [SCLATER, P. L., *and* SALVIN, O.] Ridgway's Studies of the American Herodiones. < *Ibis*, 4th ser., ii, Oct., 1878, pp. 475–477.
Review of the paper in *Bull. U. S. Geol. Surv. Terr.*, iv, No. 1, Feb., 1878, pp. 219–251.

1879. BREWSTER, W. A Second Specimen of the Yellow-crowned Night Heron (Nyctiardea violacea) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iv, No. 2, Apr., 1879, pp. 124, 125.

1879. CORY, A. B. Description of a New Species of the Family Ardeidae [cyanirostris], from the Bahama Islands.= *A loose half-sheet*, dated Boston, Oct. 8, 1879.
This irregular mode of publication is highly objectionable, and scarcely admissible. The supposed new species is apparently not distinct from the common Louisiana Heron, *Ardea ludoviciana* of Wilson, *Demiegretta ludoviciana* Baird, or *Hydranassa tricolor*, Ridgw. The specific name is apparently to be taken for *cyaneirostris*.

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1879. COUES, E. Letters on Ornithology. No. 30.—The Great White Egret. Ardea Egretta (Gm.) Gray. < *The Chicago Field*, July 26, 1879.

1879. COUES, E. Nesting of the Great Blue Heron [Ardea herodias] in the West. < *The Chicago Field*, Aug. 2, 1879.
Extract from "Birds of the Northwest."

1879. DEANE, R. The Great White Egret [Herodias egretta] in New Brunswick. < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, p. 63.

1879. EATON, D. H. Nest and Eggs of the American Bittern (Botaurus minor [lentiginosus]). < *The Oölogist*, iv, No. 10, May, 1879, pp. 73, 74, pl., fig. 1.
Original observations made in Illinois.

Phœnicopteridæ.

1716. Douglass, J. The Natural History and Description of the Phœnicopterus or Flamingo; with two Views of the Head, and three of the Tongue, of that beautiful and uncommon Bird. < *Philos. Trans.*, xxix, 1716, pp. 523–541, tab. ii, figg. 1–6.

Very full—name and its etymology, genus, geographical distribution, food, nesting, flight, uses made of the bird, and extended description; the plate shows the head, and several views of the tongue and os hyoides.

1734. Perrault, C. Description anatomique d'un Becharu [Phœnicopterus]. < *Mém. de l'Acad. Roy. des Sci.* depuis 1666 jusq. 1699, iii, pt. iii, 1734, pp. 42–49, pll. 9, 10.

1757. Perrault, C. Anatomische Beschreibung eines Flamingo [Phœnicopterus]. < *Abhandl. Königl. Französich. Akad.*, ii, 1757, pp. 217– —.

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1797. Geoffroy St. Hilaire, Ét. Sur une nouvelle espèce de Phoenicopterus [minor]. < *Millin Magas. Encycl.*, iii, 1797, pp. 433–436.

Pas vu moi-même.

1798. Geoffroy St. Hilaire, Ét. Sur une nouvelle espèce de Phoenicopterus [minor]. < *Bull. Sci. Soc. Philom.*, i, 1798, pp. 97, 98.

Pas vu moi-même.

180–. Giorna, M. E. Description du Phoenicopterus tué en Piémont le 31. Mai 1806, etc. < *Mém. Acad. Turin* pour less années 1805–8, 18—, pp. 318–327.

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1829. D'Orbigny, [A.] D., *and* Geoffroy St. Hilaire, Is. Sur une nouvelle espèce de Phénicoptère ou Flammant (Phænicopterus ignipalliatus). < *Ann. des Sci. Nat.*, xvii, 1829, pp. 454–457.

Les auteurs présentent quatre espèces—*PP. antiquorum*, *ruber*, *minor*, *ignipalliatus*, sp. n.

1829. [D'Orbigny, A. D., *and* Geoffroy St. Hilaire, Is.] Sur une nouvelle espèce de Phénicoptère ou Flammant (Phœnicopterus ignipalliatus); . . . < *Féruss. Bull.*, 2e sect., xix, 1829, pp. 111–113.

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1832. [Geoffroy St. Hilaire, Is.] Phenicoptère. Phoenicopterus. Lin. < *Guér. Mag. de Zool.*, 2e année, 1832, classe ii, Ois., notice ii, pl. ii.

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1832. Owen, R. [Notes on the Anatomy of the Flamingo, Phœnicopterus ruber.] < *P. Z. S.*, ii, 1832, pp. 141–144.

1834. D'Orbigny, A. D., *and* Geoffroy St. Hilaire, Is. [Phœnicopterus ignipalliatus.] < *Oken's Isis*, 1834, p. 1094.

Mir nicht zugänglich. Aus d. *Ann. Sci. Nat.*, xvii, 1829, p. 454 u. folgg.

1835. Hunter, W. P. On the geographical Range of the Flamingo (Phœnicópterus rùber L.). < *Loudon's Mag. Nat. Hist.*, viii, 1835, pp. 571, 572.

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1835. Owen, R. Anatomie von Phoenicopterus ruber mas. < *Oken's Isis*, Bd. xxviii, 1835, pp. 433, 434.

Aus d. *P. Z. S.*, 1832, p. 141.

1844. Des Murs, O. Notice et Considérations Oologiques sur la place à assigner au Genre Ornithologique Flamant (Phœnicopterus, L.) < *Revue Zoologique*, vii, 1844, pp. 241–246.

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1850. HULKE, J. W. Enquiry respecting the Nest of the Flamingo [Phœnicopterus antiquorum]. < *Zoologist*, viii, 1850, pp. 2801, 2802.

1857. GUYON, —. [Extrait d'une Note concernant les Flamants du lac de Tunis.] < *Rev. et Mag. de Zool.*, ix, 1857, pp. 415, 416.

1864. TRISTRAM, H. B. [Note on breeding of] The Flamingo. < *Zoologist*, xxii, 1864, pp. 9119, 9120.

From his 'Great Sahara,' p. 62.

1865. ANDERSSON, C. J. Note on the two Flamingoes of South Africa. < *Ibis*, 2d ser., i, 1865, pp. 64–67.

P. erythrœus and *P. minor;* descriptive and biographical.

1868. FEILDEN, H. W. [Description of Phœnicopterus rubidus, sp. n.] < *Ibis*, 2d ser, iv, 1868, pp. 495, 496.

1869. GRAY, G. R. Notes on the Bills of the species of Flamingo (Phœnicopterus.) < *Ibis*, 2d ser., v, 1869, pp. 438–443, pls. xiii–xv.

Commentary on the forms of the bills. Synonymatic and geographical synopsis of 8 spp., under several subgenera: *Phœniconais*, p. 440; *Phœnicorodias*, p. 441, subgg. nn. *Phœnicopterus glyphorhynchus*, sp. n., from the Galopagoes, p. 442, pl. xiv, f. 5. The bills of all the other spp. are also figured.

1869. JERDON, T. C. [On the Phœnicopterus rubidus et aff.] < *Ibis*, 2d ser., v, 1869, pp. 230–232.

1869. SAUNDERS, H. [Exhibition of eggs of the Flamingo (Phœnicopterus antiquorum).] < *P. Z. S.*, xxxvii, 1869, p. 432.

1870. CLARK, J. W. [Nidification and breeding habits of Phœnicopterus antiquorum in France.] < *Ibis*, 2d ser., vi, 1870, pp. 439–442.

1873. JACKSON, A. J. Flamingo in the Isle of Sheppey. < *Zoologist*, 2d ser., viii, 1873, p. 3693.

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1873. "M. H." The Flamingo. < *Appleton's Journ.*, x, July, 1873, p. 85.

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Suspected to be the same as *Aspergillus nigrescens* Robin, found in a phthisical Pheasant.

1879. ANON. The Flamingo [Phœnicopterus ruber]. < *The Oölogist*, iv, No. 9, Apr., 1879, p. 72.

Burlesque verses, quoted from the *Toronto Globe.*

Anatidæ.

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Haud mihi obvius.—Edit. alteram notis auctiorem edidit Casparus Thomæ filius, Hafniæ, 1668, *q. v.*, *infrà.*

1658. LELANDUS, J. Cygnea Cantio cum commentario. Londini. 1658. 8vo.

Haud mihi obvius.

1660. FELLER, J., *and* GERHARD, G. Cygnorum cantum defendere conabuntur. Lipsiæ. 1660. 4to. 2 folia.

Haud mihi obvius.

1666. MAJOR, J. D. Progr. de Cygni Anatome. Kiloniæ. 1666. 4to.

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1668. BARTHOLINUS, T. (*Ed. Bartholinus, C.*) Thomæ Bartholini | Dissertatio | de | Cygni | Anatome ejusq; | Cantu | à | Johanne Jacobo Bewerlino | in Academia Hafniensi | olim subjecta, | nunc Notulis qvibusdam auctior edi- | ta ex schedis Paternis | à | Casparo Bartholino | Thomæ Filio. | 16[monogramma]68 | — | Apud Danielem Paulli | Regium Bibliopolam. | Literis Henrici Godiani Reg. & Acade- | miæ Typographi. 1 vol. 16mo. pp. 96, figg. on p. 6.

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1670. GLATTHORN, G. L. Diss. de Cygno. Resp. Rücker. Wittebergæ. 1670. 4to. 2 folia.

Haud mihi obvia.

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Description of these cirrhipeds: "The Bird in every shell that I opened, as well the least as the biggest, I found so curiously and compleatly formed, that there appeared to be nothing wanting, as to the external parts, for making up a perfect Sea-Fowl."

1685. ROBINSON, T. Some observations on the French Macreuse, and the Scotch Bernacle; together with a continuation of the Account of Boyling, and other Fountains. < *Philos. Trans.*, xv, 1685, pp. 1036–1040.

"The French eat it upon Fish-days, and all Lent, thinking it to be a sort of fish . . . whereas the Bernacle (as also the Macreuse itself,) is Oviparous, and of the Goos-kind; and the shells [*i. e.*, cirripeds] themselves contain a testaceous animal of their own species, as the Oyster, Cockle and Muscle doth." After noticing Sir R. Moray's error, *Phil. Tr.*, No. 137, and other equally absurd mistakes, the writer speaks of the Bernacle as a Goose, and identifies the Macreuse with the *Anas niger* of Willughby, p. 336 or 366. Cf. *Philos. Trans.*, 1685, pp. 1041–1044.

1685. RAY, J. A Letter from Mr. Ray, Fellow of the R. S. to Dr. Robinson; concerning the French Macreuse. < *Philos. Trans.*, xv, 1685, pp. 1041–1044.

Acknowledges the point, and continues the subject with various further particulars; cf. *Philos. Trans.*, 1685, pp. 1036–1040.

1688. LACHMUND, F. De Cygni Lingua Ossea. < *Ephem. Acad. Nat. Cur.*, Dec. i, Cent 4 et 5, 1673–74, 1668, p. 225.

Haud mihi obvius.

1688. WEDEL, G. W. Cygni Sterni Anatome. < *Ephem. Acad. Nat. Cur.*, Dec. i, Ann. 2, 1671, 1688, pp. 30, 31, pl.

Haud mihi obvium.

1694. TREUTZEL, D. Berniclas seu Anseres Scoticos communiter sic dictos. Præs. D. Treutzel, Nycop., Resp. P. Raam, Nycop. Strengnesiae. 1694. 4to. pp. 134.

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1697. HAHN, P. Disp. phil. de Cygno ejusque Cantione. Praæs. P. Hahn, Resp. M. Weckelman, Wex. Smol. Aboæ. 1697. 8vo. pp. 8, 36.

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1698. Winter, D. De Cantu Cygneo. Cygneæ. 1698. 4to.
Haud mihi obvius.

1703. Rudeen, T. Exercitium acad. de Cantu Cygnorum. Præs. Th. Rudeen, Resp. B. Granroot, Ost-Both. Aboae. 1703. 8vo. pp. 6, 30, 2.
Haud mihi obvium.

1721. Valentini, M. B. Anatome Clangulae. < *Ephem. Acad. Nat. Cur.*, Cent. 9, 10, 1721, pp. 431, 432, 1 pl.
Not seen: title from Carus and Engelmann.

1722. Edzardus, E. H. Diss. de Cygno ante mortem non canente. Resp. Martini. Wittebergæ. 1722. 4to. 2 folia.
Haud mihi obvia.

1723. Detharding, G. Progr. de fabuloso Olorum Cantu. Rostock. 1723. 4to.
Haud mihi obvius.

1725. Törner, F. Diss. philol. de Avibus Apollinis Cygno et Corvo. Resp. N. O. Rabenius. Upsaliæ. 1725. 8vo. pp. 22.
Haud mihi obvia.

1729. Morin, H. Question naturelle et critique, sçavoir, pourquoy les Cygnes qui chantoient autrefois si bien, chantent aujourdhui si mal. < *Mém. Acad. Inscript. Paris*, v, 1729, pp. 207–218.
Pas vue moi-même.

1749. Ilström, J. Beskrifning om Körfogelens [Mergus merganser] nytta, när fiskehus blifva bygde för konom uti salt-eller insjö-vikar. < *Kongl. Vetensk.-Akad. Handl.*, 1749, pp. 190–196. (Uebersetzung 1749, pp. 197–203.)
Not seen.

1761. Tibertius, [T.] [Huru Ander kunna med fordel göras hemtamde.] < *Kongl. Svensk. Vetensk.-Akad. Handl.*, xxii, 1761, pp. 321, 322.

1763. Brünnich, M. T. Eder Fuglens [Somateria mollissima] beskrivelse. Kjøbenhavn. 1763. 8vo. pp. 60. 3 pll.

1763. Brünnich, M. T. Tilltoeg til Ederfuglens [Somateria mollissima] beskrivelse. Kjøbenhavn. 1763. 8vo. pp. 36.
I have seen neither of these tracts in the original Danish, but have handled the German version of same date. See next title.

1763. Brünnich, M. T. Die | natürliche Historie | des | Eider-Vogels [Somateria mollissima] | beschrieben | von | Morten Thrane Brünniche | aus dem dänischen übersetzt. | [Abbildung.] | mit Kupfern. | — | Kopenhagen, | bey Johann Gottlob Rothen | 1763. 1 vol. sm. 8vo. 4 p. ll., pp. 1–70, 1 l., 3 pll.

1770. Gueldenstaedt, A. J. Anas nyroca. < *Novi Comment. Acad. Scient. Imp. Petrop. ad ann.* 1769, xiv, pt. i, 1770, p. 37.

1770. Gueldenstaedt, A. J. Anas nyroca. < *Novi Comment. Acad. Scient. Imp. Petrop. ad ann.* 1769, xiv, pt. i, 1770, pp. 403–408.

1775. Beckmann, J. Kleiner Beitrag zur Naturgeschichte des Meerrochen, Mergus serrator, L. < *Beschäfft. d. Berlin. Gesell. Naturf. Freunde*, i, 1775, pp. 170–176.
Nicht mir selbst zugänglich.

1775. Titius, J. D. Von Nutzen und Unschädlichkeit der Schwäne [Cygnus sp.]. < *Berlin. Sammlgn.*, vii, 1775, pp. 583–592.
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1776. Pallas, P. S. Erinnerung wegen des Linneischen Mergus serrator. . . . < *Beschäfft. d. Berlin. Gesell. Naturf. Freunde*, ii, 1776, pp. 551–558.
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1777. ———. Von dem Schwanengesange. < *Neu. Hamburg. Magaz.*, St. cvi, 1777, pp. 371–379.
Mir nicht zugänglich.

1777. Chemnitz, J. H. Vom Gesang der Isländischen Schwanen. < *Beschftgn. d. Berlin. Ges. Nat. Fr.*, iii, 1777, pp. 460, 461. (Anmerk. dazu, von O. F. Müller, *Schrift. d. Berl. Ges. Nat. Fr.*, ii, 1781, p. 132.)

Mir nicht zugänglich.

1779. Pallas, P. S. Den skrockande Anden (Anas glocitans), en rar Fogel, som endast blifvit funnen i Östra Siberien, beskrifven och afritad af P. S. Pallas. < *Kongl. Svensk. Vetensk.-Akad. Handl.*, xl, 1779, pp. 26–34, pl. i.

"I de inledande anmärkningarne om Andslägtet i allmanhet säger förf., at *Merg. albellus* är hona till *M. merganser.*" (v. Friesen.)

1779. Pallas, P. S. Anas glocitans, ein seltner Vogel, nur im östlichen Sibirien zu finden. < *Abhandl. Schwed. Akad.*, xli, f. 1779, pp. 22–28.

Nicht mir selbst zugänglich.

1780. Faille, C. de la. Mémoire dans lequel on examine le sentiment des anciens et des modernes sur l'origine des Macreuses. < *Mém. étrang. Acad. Roy. des Sci. de Paris*, ix, 1780, pp. 331–344.

Pas vu moi-même.

1780. Ödman, S. Zoologisk Anmårkning om Mergus albellus. < *Kongl. Vetensk. Acad. Nya Handl.*, i, 1780, pp. 237–240.

"Här rättas Pallas' uppgift, *op. cit.*, 1779, p. 27, at *Mergus merganser* och *M. albellus* skulle vara samma art."

1781. ————. Over den kleinen witkoppigen Zaager [Mergellus albellus?] < *Geneesk. Jaarbook*, v, 1781, pp. 205–209.

Not seen.

1781. Otto, B. C. Beschreibung der Säge-Schnäbler [Mergus serrator]. < *Oekon. Nachricht. d. Gesell. in Schlesien*, vii, 1781, pp. 81, 90, 97.

Not seen: title from Carus and Engelmann.

1783. Mongez, A. Sur les Cignes qui chantent. < *Journ. de Phys.*, xxiii, 1783, pp. 304–314.

Not seen—see the separate memoir, same date.

1783. Mongez, A. Mémoire | sur | des Cygnes | qui chantent; | Par M. A. Mongez, Garde des Antiques & du | Cabinet d'Histoire Naturelle de Sainte-Genevieve, | de plusieurs Académies. | [Dessin.] | A Paris, | Rue et Hôtel Serpente. | — | 1783. 1 vol. 8vo. 1 p. l., pp. 39.

The Royal Academy considered that Abbe Mongez treated the subject carefully and elaborately, and the recommendation that his Mémoire be printed among those of foreign savans has the distinguished signatures of Daubenton, Brisson and Vicq d'Azyr.

1783. Ödmann, S. Ornithologiske Anmårkningar om Al-Foglen. (Anas Hiemalis [Harelda glacialis].) < *Kongl. Vetensk. Acad. Nya Handl.*, iv, 1783, pp. 313–322.

1785. Ödmann, S. Svårtan, Anas [Œdemia] Fusca Linn. beskrifven til des Seder och Hushållning. < *Kongl. Vetensk. Acad. Nya Handl.*, vi, 1785, pp. 191–195.

1785. Ödmann, S. Skråckans, (Mergi Merganseris) hushållning och lefnadssått, jåmte någre anmårkningar öfver detta slågte i allmånhet. < *Kongl. Vetensk. Acad. Nya Handl.*, vi, 1785, pp. 307–316.

"Uti den allmänna öfversigten sammanslås Linné's 6 (Svenska) arter tiel 3: ne. Dessutom anföras 1 säker och 2 osäkra exotiscka arter." (*v. Friesen*, p. 42.) Beskrifning om *M. merganser*, *serrator*, *cucullatus*, og *albellus*.

1786. Walbaum, J. J. Beschreibung der Taucher-Gans [Mergus merganser] weiblichen Geschlechts. < *Schrift. d. Berlin. Gesell. Naturf. Freunde*, Bd. vii, St. i, 1786, pp. 119–130.

Nicht mir selbst zugänglich: Titel aus Carus u. Engelmann.

1788. Walbaum, J. J. Beschreibung der lachenden Gans [Anser erythropus] männlichen Geschlechts. < *Schrift. d. Berlin. Gesell. Naturf. Freunde*, Bd. viii. 1788, pp. 75^b–91^b.

Not seen—title from Carus and Engelmann.

1792. Thillaye, —. Description d'une singularité du Cygne [Cygnus sp.]. < *Journ. d'Hist. Nat.*, 1792, pp. 463–467.

Pas vue moi-même.

1793. Fabricius, O. Om den pukkelnabbede Edderfugl, Anas [Somateria] spectabilis, og Grönlandernes Edderfuglefangst. < *Skrifter Naturh. Selsk. Kjøbenh.*, Bd. ii, Heft ii, pp. 56–83, 1 pl.

Not seen—title from Carus and Engelmann.

1794. [Meyer, F. A. A.] Herrn Professor Thillayes Nachricht einer seltenen Abart des Schwans. < *Meyer's Zool. Annalen*, i, 1794, pp. 304–308.

Auszug aus d. *Journ. d'Hist. Nat.*, 1793.

1797. Vicq d'Azyr, F. Observations sur les organes de la génération des Canards [Anatidæ]. < *Bull. Sci. Soc. Philom.*, i, (1), 1797, pp. 57′, 58′.

Pas vues moi-même: le titre tiré de Carus et Engelmann.

1800. M[itchill], S. L. Domestication of the Wild-Goose (Anas [Bernicla] Canadensis). < *Mitchill and Miller's Medical Repository*, iv, No. 2, 1800, pp. 198, 199.

1802. [Mitchill, S. L.] The white-back or canvas-back duck [Fuligula vallisneria]. < *Mitchill and Miller's Medical Repository*, v, No. 3, 1802, pp. 342, 343.

One of the very earliest notices of this bird as a distinct species. It is not named.

1802. Sewastianoff, [A.] Description d'une nouvelle espèce de Canard [Anas canagica] et d'une variété de l'huitrier, qui se trouvent dans le cabinet d'histoire naturelle de l'Academie Imperiale des Sciences. < *Nova Acta Acad. Scient. Imp. Petrop. for* 1800, xiii, 1802, pp. 346–351, pl. x.

Descr. du canard, p. 349, pl. x: c'est une oye, l'*Anser canagicus*, *Chloëphaga c.* Eyton, *Philacte c.* Bann. L'auteur décrit l'huitrier comme une variété de *Hæmatopus ostralegus*, sans le nommer: c'est devenu plus tard le *Hæmatopus niger* Pall.

1803. Lordat, —, (*ainé*). Mémoire Sur la structure de l'articulation du genou dans la macreuse [Œdemia nigra], et sur la progression de cet oiseau. < *Journ. de Phys. Chim. Hist. Nat.*, lvii, 1803, pp. 32–35.

Lu à la Soc. Méd. de Montpellier, le 30 nivôse an 11 (1803).

1805. Barton, M. [Occurrence of the Canvas-back Duck (Fuligula vallisneria) on the Susquehanna.] < *Barton's Med. and Phys. Journ.*, part i, vol. ii, 1805, pp. 161, 162.

With a note by the editor, identifying it as "*Anas ferina* Linn." This notice is nine years prior to the original description of the species as *Anas vallisneria* by Wilson, 1814, and the bird is spoken of as if then well-known under its vernacular name.

1806. Geoffroy St.-Hilaire, É. Description D'un mulet provenant du canard morillon, anas [Clangula] glaucion, et de la sarcelle de la Caroline, anas querquedula [Querquedula carolinensis]. < *Ann. du Mus. d'Hist. Nat.*, vii, 1806, pp. 222–226.

1806. Geoffroy St.-Hilaire, É. Mouvemens de la Ménagerie. Notes sur le zèbre et le canard à bec courbe. < *Ann. du Mus. d'Hist. Nat.*, vii, 1806, pp. 245–248.

2° Du canard à bec courbé (*Anas curvirostra*), p. 246.

1808. Cuvier, Fréd. Observations Sur l'accouplement d'un cigne chanteur mâle et d'une oie domestique femelle. Description du mulet qui en est provenu. < *Ann. du Mus. d'Hist. Nat.*, xii, 1808, pp. 119–125.

Avec des observations générales sur l'accouplement des oiseaux de différente espèce.

1823. Cooke, T. A | Letter | to | Mark Milbank, Esq. M. P. | of | Thorp Hall, and Barningham, in the county of York, | with two plates, | descriptive of the character | of | The Whistling Swan, | and of | the peculiar structure | of its trachea. | [By Thomas Cooke.] | — | Amico minusculum levidense. | Cic. Ep. Fam. L. ix. 12. | — | London: | printed for, and published by Rodwell and Martin, Bond Street; | Wood, Strand; | Hailes, Piccadilly; | Tucker, Christchurch; and Bell, Richmond; | — | 1823. folio. cover-title, pp. 12, pll. 2.

The cover-title is different: A | Description | of | the character | of | the Whistling Swan, | and of | the peculiar structure | of its | Trachea. | — |

The work is technically anonymous, but the author signs his name at the end. The plates represent the exterior of the bird, and its windpipe.

1823. Wilson, J. Observations on some Species of the Genus Mergus. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. ii, 1823, pp. 475–484.

On the specific identity of *Mergus castor* and *M. merganser*, and on the differences between the females of this species and of *M. serrator.*

1824. Bonaparte, C. [L.] On a new species of Duck [Anas rufitorques] described by Wilson as the same with the Anas fuligula of Europe. < *Journ. Acad. Nat. Sci. Phila.*, iii, 1824, pp. 381–389.

1824. [Brehm, C. L.] Leislers Eidertauchente. Platypus Leisleri, Brehm. < *Ornis*, Heft i, 1824, pp. 28–39.

1824. [Brehm, C. L.] [Das Sommerkleid der männlichen Eidertauchenten, Somateria mollissima.] < *Ornis*, Heft i, 1824, pp. 40–42.

1825. Bruch, C. F. [Ueber die Eidertauchente (Somateria mollissima).] < *Vereinsblatt d. Ver. f. Kunst u Lit. zu Mainz*, 26. Aug. 1825.

Nicht mir selbst zugänglich.

1825. Desm . . . st, [A. G.] Sur une nouvelle espèce de Canard [Anas rufitorques] déscrite par Wilson, comme étant la même que l'Anas fuligula (ou le Morillon) d'Europe; par M. Charles Bonaparte. . . . < *Féruss. Bull.*, 2^e sect., iv, 1825, pp. 128, 129.

Extrait du *Journ. Phila. Acad.*, iii, No. 13, mai 1824, pp. 381–389.

1825. "F." Anas Rufitorques. < *Edinb. Journ. Sci.*, ii, 1825, p. 186.

Merely a reference to the species as established by Bp., *Journ. Acad. Phila.*, iii, 1824, p. 381.

1826. Anon. Oies de Toulouse. < *Féruss. Bull.*, 4^e sect., v, 1826, p. 107.

Acad. des Sci. de Dijon, séance du 20 août 1825, p. 31.

1826. Lesson, [R.] P. Observations sur quelques espèces du genre Mergus, . . .; par James Wilson . . . < *Féruss. Bull.*, 2^e sect., vii, 1826, pp. 113, 114.

Extraites des *Mem. Wern. Soc.*, iv, pt. ii, 1823, pp. 475–484, *q. v.*

1826. Lestiboudois, T. Note sur le Cygne sauvage et le Cygne domestique (Anas Cygnus et A. olor, Temm.). < *Recueil de la Soc. d'Amat. des Sci. de Lille*, 1826, p. 270.

Not seen—title from *Féruss. Bull.*

1826. Yarrell, W. Notice of the occurrence of a species of Duck [Fuligula rufina] new to the British Fauna. < *Zool. Journ.*, ii, 1826, pp. 492, 493.

1827. ————. Der Schwan. < *Abhandl. d. Naturf. Ges. in Görlitz*, i, 1, 1827, pp. 32–40.

1827. ————. Education des Canards. < *Féruss. Bull.*, 4^e sect., viii, 1827, p. 260.

Asiatic Journal, juillet 1826, p. 61.

1827. Cuvier, [G.] Du Canard Pie, a pieds demi palmés, de la Nouvelle-Hollande. (Anas [Anseranas] melanoleuca. Lath.) < *Mém. du Mus. d'Hist. Nat.*, xiv, 1827, pp. 345–347, pl. 19.

1828. [Cuvier, G.] Du Canard Pie a pieds demi-palmés, de la Nouv.-Hollande (Anas [Anseranas] melanoleuca Lath.), . . .; par M. le baron Cuvier. . . . < *Féruss. Bull.*, 2^e sect., xiii, 1828, p. 436.

Extrait des *Mém. du Mus.*, xiv, 1827, p. 345.

1828. Lafresnaye, F. de. Extrait d'une lettre de M. Frédéric de Lafresnaye, naturaliste, à Falaise (Calvados), relatif à la Sarcelle de Chine, dont un undividu vient d'être tué en Normandie. < *Féruss. Bull.*, 2^e sect., xiv, 1828, p. 118.

Avec une note de M. Lesson.

1828. Lotz, G. Ornithologische Beobachtungen von Gideon Lotz; mit Anmerkungen von Gloger. < *Oken's Isis*, Bd. xxi, 1828, pp. 1233–1240.

Ueber die weissäugige Ente, *Anas leucophthalmus* Borckh., *A. nyroca* Gmel.

1829. "A. B." Desertion of Geese. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 65.

1829. Brew, C. A. Presentiment in a Goose. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 65.

1829. Eimbeck, —. [Eine merkwürdige Mittelform zwischen Anas clangula und Mergus albellus.] < *Oken's Isis*, Bd. xxii, 1829, pp. 400, 401.
Vergl. *Isis*, Bd. xxiii, 1830, p. 568.

1829. [Eimbeck, —.] Beschreibung | eines | bisher nicht bekannten sehr auffallend | gebildeten | Deutschen Wasservogels | nebst einer | verhältnissmässigen Abbildung | in halber Lebensgrösse. | — | Braunschweig, 1829. 4to. Titelbl., 2 unpaginirte Blätter = 4 Seiten, 1 Taf.
Anonym, doch von unzweifelhafter Autorschaft. Der Vogel wird *Mergus anatarius* genannt, und für einen Bastard von *Mergus albellus* ♂ und *Anas clangula* ♀ gehalten. Vergl. *Isis*, 1829, p. 400; 1831, p. 299.

1829. Hill, W. H. The Small Dover. < *Loudon's Mag. Nat. Hist.*, ii, 1829, pp. 403, 404.

1829. Hill, W. H. The Dark-looking Water Bird. [Answer to query on p. 101.] < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 403.

1829. L——s, J. A dark-looking Water Bird. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 101, fig. 21.
Cf. *tom. cit.*, p. 403, where supposed to be *Anas* [*Œdemia*] *nigra*.

1829. Lengerte, A. de. Manière d'élever les Oies dans le Holstein . . . < *Féruss. Bull.*, 4ᵉ sect., xii, 1829, pp. 133, 134.
Land- und Hauswirth, 1825, p. 269.

1829? Pohl, W. L. Der Schwan. < *Abhand. Naturf. Gesell. zu Görlitz*, i, pt. 1.
Not seen.—Poem, set to music by J. Schneider, preceded by an anonymous notice of the natural history of this emblem of the Görlitz Society.

1829. Schleep, [B. C.] Anser medius. < *Oken's Isis*, Bd. xxii, 1829, pp. 1054, 1055.

1829. "T. F." Flying Geese. < *Loudon's Mag. Nat. Hist.*, ii, 1829, p. 65.

1830. Blackwall, J. Observations on a newly-described Species of Swan [Cygnus bewickii]. < *Zool. Journ.*, v, 1830, pp. 189–191.

1830. "Correspondent." [T. C. Heysham?] Statement respecting the Discovery of the new Species of Swan, named Cygnus Bewickii by Mr. Yarrell. < *Philos. Mag.*, viii, Aug., 1830, pp. 128–130.
Original specimen shot by R. R. Wingate, Feb., 1829, near Haydon Bridge in Northumberland. Mr. Wingate's notice was read to the Nat. Hist. Soc. of Newcastle-upon-Tyne, Oct. 20, 1829; P. J. Selby's description on 16 Feb., 1830; but neither of these papers was published till after June, 1830.

1830. Eimbeck, —. Cross of the Anas clangula [Clangula glaucium] and Mergus albellus. < *Edinb. New Philos. Journ.*, viii, 1830, p. 202.
See same author at 1829 and 1831.

1830. Hahn, E. Commentatio de arteriis Anatis. Accedunt tabulæ æneæ. Hannoveræ, in Bibliopoleo aulico Hahniano. 1830. 4to. pp. vi, 60, pll. 2.
Haud mihi obvia.

1830. Wingate, R. R. Notice of a [lately] new species of Swan [Cygnus bewickii]. < *Trans. Nat. Hist. Soc. Northumb. and Durh.*, i, 1830, pp. 1, 2. Observations by P. J. Selby, pp. 17–25.
Not seen.

1830. Yarrell, W. On a new Species of Wild Swan [Cygnus bewickii], taken in England, and hitherto confounded with the Hooper. < *Trans. Linn. Soc.*, xvi, pt. ii, 1830, pp. 445–454, pll. xxiv, xxv. (Read Jan. 19, 1830; whole vol. dated 1833.)
C. bewickii, p. 453; sternum and trachea figured.
This paper, like others in the same vol. of the *Trans.*, is often cited as of 1833, date of the completed Vol. XVI; but it was read and in full discussion and reprint in 1830.

1830. [Yarrell, W.] [Notice of his paper on a new species of Wild Swan (Cygnus bewickii).] < *Philos. Mag.*, vii, Feb., 1830, p. 146.
Read before Linn. Soc., Jan. 19, 1830.

1830. Yarrell, W. Specific Characters of Cygnus Bewickii and C. Ferus. < *Philos. Mag.*, vii, Mar., 1830, p. 194.

1830. Yarrell, W. Reply to the Statement respecting the Discovery of Cygnus Bewickii, published in the Phil. Mag. and Annals for August. < *Philos. Mag.*, viii, Sept., 1830, pp. 167–169.

Personal and controversial, in self-defense against *tom. cit.*, pp. 128–130.

1830. [Yarrell, W.] Sur une nouvelle espèce de Cygne [bewickii] prise en Angleterre et confondue jusqu'a présent avec le cygne sauvage (Anas cygnus, Gm.); par W. Yarrel[l]. . . . < *Féruss. Bull.*, 2e sect., xxii, 1830, pp. 127, 128.

From *Linn. Trans.*, xvi, pt. ii, p. 445, pl.

1830. Yarrell, W. Eine für die britische Fauna neue Ente [Fuligula rufina]. < *Oken's Isis*, Bd. xxiii, 1830, pp. 1065, 1066.

Aus d. *Zool. Journ.*, iii, 1826.

1831. Bennett, E. T. [On the History and Synonymy of Cereopsis novæ-hollandiæ.] < *P. Z. S.*, i, 1831, pp. 26, 27.

1831. Eimbeck, —. Beschreibung eines bisher nicht bekannten, sehr auffallend gebildeten deutschen Wasservogels, nebst einer verhältnissmassigen Abbildung in halber Lebensgrösse. < *Oken's Isis*, Bd. xxiv, 1831, pp. 299–301, pl. iii.

Mergus anatarius = *A. clangula* ♂ × ♀ *Mergus albellus.* See same author at 1829.

1831. Fiennes, T. [Exhibition of a hybrid Duck—Anas acuta ♂ × ♀ A. boschas.] < *P. Z. S.*, i, 1831, p. 158.

1831. Fischer, G. Sur une nouvelle espèce de Canard du Kamtschatka [Anas cucullata]. < *Bull. Soc. Imp. Nat. Moscou*, iii, 1831, pp. 278–280.

Le Canard à Capuchin, *Anas cucullata*, p. 279. Voyez 1834, Fischer, G.

1831. Less[on, R. P.] Sur le Mergus cucullatus, Selby. . . . < *Féruss. Bull.*, 2e sect., xxvii, 1831, p. 190.

Edinb. Journ. Nat. and Geogr. Sci., n. s., No. 4, Apr., 1831, p. 238.

1831. Less[on, R. P.] Note sur une nouvelle espèce de Cygne [Cygnus bewickii]; par M. R.-R. Wingate: lu le 29 Octobre 1829. . . . < *Féruss. Bull.*, 2e sect., xxvi, 1831, pp. 297, 298.

Trans. Nat. Hist. Soc. Northumb. and Durh., i, 1830, p. 1.

1831. Less[on, R. P.] Observations sur la nouvelle espèce de Cygne [C. bewickii], découverte par M. R. Wingate; par P.-J. Selby. . . . < *Féruss. Bull.*, 2e sect., xxvi, 1831, pp. 297, 298.

Trans. Nat. Hist. Soc. Northumb. and Durh., i, 1830, p. 17.

1831. Swainson, W. The Habits of the long-legged whistling Ducks [Dendrocygna] of the West India Islands, and the Habits of the Sheldrake [Tadorna cornuta]. < *Loudon's Mag. Nat. Hist.*, iv, 1831, p. 474.

Merely a query. Cf. *op. cit.*, v, 1832, p. 203.

1831. Yarrell, W. [On the Anatomy of Cereopsis novæ-hollandiæ, and on the relations between Natatores and Grallatores.] < *P. Z. S.*, i, 1831, pp. 25, 26.

1831. Yarrell, W. [Remarks on the structure of Cereopsis novæ-hollandiæ.] < *Philos. Mag.*, ix, 1831, pp. 222, 223.

From *P. Z. S.*, Jan. 25, 1831, pp. 25, 26.

1832. Allis, T. The Food of the Scoter Duck (Anas nigra Linn., Oidemia nigra Flem.; and the Food of the Eider Duck (Anas mollissima Lin., Somateria mollissima Flem.). < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 733.

1832. Allis, T. Reply to T. K.'s Queries ([tom. cit.] p. 397,) on the Windpipe, Plumage, and Weight of the Dun Diver [Mergus castor]. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 766, 767, figg. 126–128.

1832. Anon. A Flock of Egyptian Geese [Chenalopex ægyptiacus] seen besids the Tweed at Carham. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 565, 566.

1832. Anon. Teal [Querquedula carolinensis]. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 473.

1832. "A SUBSCRIBER." Habits of the long-legged whistling Ducks [Dendrocygna], and of the Sheldrake [Tadorna cornuta]. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 203.

Cf. *op. cit.*, iv, 1831, p. 474.

1832. BECKFRIIS, C. Skånska Svanjagten [Cygnus sp.]. < *Tidsk. f. Jägare och Naturf.*, i, 1832, pp. 78–83.

Not seen.

1832. BLACKWALL, J. Bemerkungen ůber eine kůrzlich beschriebene Gattung Schwan [Cygnus bewickii]. < *Oken's Isis*, Bd. xxv, 1832, p. 661.

Auszug aus d. *Zool. Journ.*, Tom. v, No. xviii, 1830, p. 189.

1832. G[OATLEY], T. Notes on the Scoter (Anas nigra Lin., Oidemia nigra Flem.). < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 82.

1832. HILL, W. H. A rare Variety of the Goose Family. < *Loudon's Mag. Nat. Hist.*, v, 1832, pp. 79, 80, fig. 33.

1832. K[NOX], T. Information and Queries on the Trachea, or Windpipe, of the Dun Diver (Mergus Castor). < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 397.

1832. SELLS, W. Wild Ducks [in Chesapeake Bay]. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 452.

1832. SHARPLESS, J. T. Description of the American Wild Swan [Cygnus americanus], proving it to be a new species. < *Sillim. Am. Journ. Sci.*, xxii, 1832, pp. 83–90, pll. (figs. of sternum and trachea).

1832. SWAINSON, W. On those Birds which exhibit the typical perfection of the family of Anatidæ. < *Journ. Roy. Inst. London*, ii, 1832, pp. 11–29.

Not seen: title from Carus and Engelmann.—It seems to have passed for more than it was worth in 1832, when some queer quinarian quips, arrayed in learned ingenuity, were often mistaken for science.

1832. WATERTON, C. A Wigeon's [Mareca penelope] Nest in England. < *Loudon's Mag. Nat. Hist.*, v, 1832, p. 590.

1832. YARRELL, W. [On a hybrid between Anas (Cairina) moschata ♂ and A. domestica ♀.] < *P. Z. S.*, ii, 1832, p. 100.

1833. BLOXHAM, A. Geese from the Netherlands shot on the Trent. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 450.

1833. BYERLEY, J. The Pride of Colour in Swans. < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 139, 140.

1833. D[ENSON], J. A Duck that had strayed from Denmark (?) shot in Sussex. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 450.

1833. FENNELL, J. Pride of Colour in the Black Swan [Cygnus atratus]. < *Loudon's Mag. Nat. Hist*, vi, 1833, p. 278.

1833. FENNELL, J. Enmity between the White Swan [Cygnus sp.] and the Black Swan [Cygnus atratus]. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 514.

1833. HUNTER, P. A Pair of Ferruginous Ducks (Anas [Tadorna] rutila L.). < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 141, 142.

Occurrence near Oxford.

1833. "J. C." The Question of the Wigeon's [Mareca penelope] breeding in England. < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 384.

1833. SCOULER, J. The Egyptian Goose (Anas [Chenalopex] ægyptiaca). < *Loudon's Mag. Nat. Hist.*, vi, 1833, p. 514.

Near Glasgow, Nov., 1832.

1833. SWAINSON, [W.] Swainson ůber die typischen Vôgel der Anatidae, Fig. < *Oken's Isis*, Jahrg. 1833, pp. 944, 945.

Auszug aus d. *Journ. Roy. Inst.*, xxx, oder n. F., ii, Heft 4, Aug., 1832, p. 11.

1833. VIGORS, N. A. [On a New Species of Barnacle Goose (Bernicla sandvicensis) from the Sandwich Islands, presented by Lady Glengall.] < *P. Z. S.*, i, 1833, p. 65.

1833. "W. L." [Habits of] Cygnus Bewickii. < *Loudon's Mag. Nat. Hist.*, vi, 1833, pp. 449, 450.

1833. WRIGHT, M. v. Iakttagelser öfver Gräsandhannens [Anas boschas] färgförändringar i första året. < *Tidsk. f. Jägare o. Naturf.*, ii, 1833, pp. 473, 474.
Not seen.

1833. WRIGHT, W. v. Gräsandens (Anas boschas) sommardrägt. < *Tidsk. f. Jägare o. Naturf.*, ii, 1833, pp. 674–676.
Not seen.

1833. YARRELL, W. [On the trachea of Anas [Chloephaga] magellanica.] < *P. Z. S.*, i, 1833, pp. 3, 4.

1834. ANON. Ducks with the Toes not connected by a Web or Membrane, and the Upper Mandible imperfect: presumed to have proceeded from a Union between the Domestic Duck [Anas boschas] and Domestic Fowl. < *Loudon's Mag. Nat. Hist.*, vii, 1834, pp. 516, 517.

1834. BRETON, —. [On the Habits of the Musk Duck of New Holland (Hydrobates [Biziura] lobatus, Temm.).] < *P. Z. S.*, ii, 1834, p. 19.

1834. EKSTRÖM, C. U. Bidrag till Ejder-fogelns [Somateria mollissima] historia. < *Tidsk. f. Jägare o. Naturf.*, iii, 1834, pp. 1043–1045.
Not seen.

1834. EKSTRÖM, C. U. Knipans (Anas Clangula Lin. [Clangula glaucium] färgförändring. < *Tidsk. f. Jägare o. Naturf.*, iii, 1834, pp. 1048–1051.
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Mit Bemerkungen des Herausgebers und von C. W. L. Gloger.

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Nothing beyond the fact of observing it "last summer."

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Anserinæ; fig. A, B, C, *Anser arvensis;* fig. D, E, F, *Anser segetum.*

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Cf. *tom. cit.*, p. 327.

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Zusätze d. Herausg.

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From Scarborough, Maine; full description; proposed to be named *Clangula mergiformis*.

1854. GOULD, J. [Exhibition of male and female specimens of a very rare English Duck (Fuligula ferinoïdes).] < *P. Z. S.*, xxii, 1854, p. 95.

1854. HARTLAUB, G. Vorläufiges über die von B. Altum beschriebene kleine Schwanenart. < *Naumannia*, iv, 1854, pp. 327–329.

Cf. *tom. cit.*, p. 145.—Dass die von Altum beschriebene Art keine andere als der 1831 von Sharpless in den 22sten Bande von Silliman's *Amer. Journ. Sci.* auf S. 83 beschriebene *Cygnus americanus* sein kann. (Vergl. *op. cit.* v, pp. 101, 258.)

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1854. WAKEFIELD, R. Singular Hatch of Ducklings. < *Zoologist*, xii, 1854, p. 4441.

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1855. ANDREWS, W. On an Addition [Malacorhynchus membranaceus] to the Ornithology of Great Britain. < *Nat. Hist. Rev.*, (*Pr. Soc.*), ii, 1855, pp. 8, 9, 10.

Other additions to the same fauna are also noted.

1855. BERESFORD, G. Occurrence of the Smew [Mergellus albellus] near London. < *Zoologist*, xiii, 1855, p. 4704.

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1855. Gray, G. R. On a new Species of Somateria [v-nigra], and the Female of Lampronetta Fischeri, Brandt. < *P. Z. S.*, xxiii, 1855, pp. 211, 212, pll. (Aves) cvii, cviii.

Pl. cvii, *Somateria v-nigra*, p. 212, sp. n.; pl. cviii, *Arctonetta* (n. g.) *fischeri.*

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1855. Newman, E. Curious Act of Auto-surgery in a Teal [Zool., p. 4661]. . < *Zoologist*, xiii, 1855, p. 4704.

1855. Preston, T. A. Curious act of Autosurgery in a Teal [plugging a wound with feathers]. < *Zoologist*, xiii, 1855, p. 4661. [Cf. p. 4704.]

1855. Schlegel, H. [Ein Wort über den von Altum beschriebenen Singschwan mit ganz schwarzer Schnabelfirste. < *Naumannia*, v, 1855, p. 258, taf. iv, f. 1–4.

1855. Schlegel, H. [Ueber die Saat- und weisstirnigen Gänse.] < *Naumannia*, v, 1855, pp. 254–257.

15 allgemeine Bemerkungen. 5 spp.

1855. Selys-Longchamps, E. Bemerkungen über die wahren Gänse (Anser) Europas. < *Naumannia*, v, 1855, pp. 261–265, pl. iv, f. 6, 7.

8 spp. *Anser pallipes*, sp. n.

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1855. Wyman, J. [Remarks on exhibition of a preparation of the wing of the "Winter" or Pin-tailed Duck (Dafila acuta).] < *Proc. Boston Soc. Nat. Hist.*, v, 1855, p. 169.

Showing mechanism of flexion and extension, contributing to fixity of the limb, independently of muscular action.

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Pl. clxvii, *Fuligula collaris* × *F. americana*. Pl. clxviii, *Anas boschas* × *Dafila acuta*.

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Synonymatic list of 8 spp. known to the author, with the habitat of each, and critical commentary; with 2 others not seen by him. *DD. autumnalis, viduata, arborea, guttulata, arcuata, major, vagans, eytoni;* with *fulva* and *virgata*. See *P. Z. S.*, 1866, pp. 148–150, 417, 418.

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Specimen from Disco; first instance of the discovery of the species in that country.

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The *Anseres* of this article are equivalent to the *Anatidæ* + *Phœnicopteridæ* of authors. Of the former family are described 5 spp. of *Mergus*, 9 of *Biziura*, 27 of *Fuligula*, 50 of *Anas*, 4 of *Nettapus*, 8 of *Cygnus*, 8 of *Dendrocygna*, 1 *Anseranas*, 1 *Plectropterus*, 26 of *Anser*, and 1 *Cereopsis* = 132 *Anatidæ*. Of the Flamingoes 4 species of *Phœnicopterus* are recognized.

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Cf. *P. Z. S.*, 1864, pp. 299–301. Further notes on *DD. major*, *vagans*, and *fulva*, with remarks on *Tadorna variegata*. Cf. *P. Z. S.*, 1866, p. 417.

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From the London 'Field,' Jan. 26.

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Maintaining their identity on anatomical grounds. The subject is discussed at length; the sternums of the two are figured.

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This is the memoir in full, preliminary notice of the material, with description of *Cygnus falconeri*, having been previously made in *P. Z. S.*, 1865, pp. 752, 753.

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The numbers of six species of *Anatidæ* (*Anas boschas*, *Nettion crecca*, *Mareca penelope*, *Spatula clypeata*, *Dafila acuta*, and *Chaulelasmus streperus*) taken during thirty-five seasons (Sept., 1833 to Apr., 1868) at this celebrated Lincolnshire decoy.

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Bemerkungen über 8 Arten, deren 4 der alten Welt und ebensoviele der neuen Welt angehören.

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1868. **Tiemann**, F. [Beitrag zur Thierseelenkunde (Schwan).] < *Zool. Gart.*, ix, 1868, p. 79.

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"The feathers were stripped of their plumules and the filaments formed a plush-like nap of remarkable uniformity, which adhered firmly to the whole interior of the case."

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C. olor × *Anser domesticus*—*Anas boschas* × *Dafila acuta*—*Dafila acuta* × *Chaulelasmus streperus*. Cf. *op. cit.*, vi, 1869, pp. 140, 141.

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Note on the disappearance of the species from Maine.

1869. **Brydges**, H. J. J. Summer Duck [Aix sponsa] at Boultibrook. < *Zoologist*, 2d ser., iv, 1869, p. 1563.

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1869. Eyton, T. C. A | Synopsis | of the Anatidæ, | or Duck Tribe. | By | T. C. Eyton, Esq., F. G. S., F. Z. S., | And Corresponding Member of the Natural History Society of | Philadelphia. | — | Wellington, Salop: | printed by R. Hobson, Market Square. | — | MDCCCLXIX. 1 vol. 16mo. 3 p. ll., pp. 1–141.

May be taken as a second ed. of his monograph of the *Anatidæ* (1838), with additions, bringing the subject up to date. It is printed in this small form for convenience of portability. It gives, first, a diagnostic and synonymatic synopsis of the genera and subfamilies of the *Anatidæ*, according to the author's views; after which the species of the family receive similar treatment.

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1869. Gunn, T. E. Parasitical Worms in the Stomach of a Redbreasted Merganser [Mergus serrator]. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1869. Gunn, T. E. Velvet Scoter [Œdemia fusca] in Norfolk. < *Zoologist*, 2d ser., iv, 1869, pp. 1722, 1723.

1869. Gunn, T. E. Canada Geese [Bernicla canadensis] at Yarmouth. < *Zoologist*, 2d ser., iv, 1869, p. 1848.

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1869. Gunn, T. E. Black Swan [Cygnus atratus] on the Suffolk Coast. < *Zoologist*, 2d ser., iv, 1869, p. 1867.

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1869. Malmgren, A. J. Anteckningar om Finlands och Skandinaviska halföns Anseridæ. < *Notis. Sällsk. pro Faun. et Flor. Fennica Förh.*, x, 1869, pp. 389–401.

Not seen. "Of *Anser* proper 5 speces are included, and of *Bernicla* 3, very full bibliographical references being given." Cf. *Ibis*, 1870, p. 132.

1869. Malmgren, A. J. Anteckningar om Finlands och Skandinaviska halföns Anseridæ. Helsingfors. 1869.

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1869. Smee, A. H. Redcrested Merganser [Mergus serrator] on the Thames. < *Zoologist*, 2d ser., iv, 1869, p. 1684.

1869. Watson, J. Scoter [Œdemia nigra] breeding in Strathmore. < *Zoologist*, 2d ser., iv, 1869, p. 1867.

1869. Wickevoort-Crommelin, J. P. van. [Cygnus olor × Anser domesticus, hybrid.] < *Ibis*, 2d ser., v, 1869, p. 127.

1869. WRIGHT, J. Summer Duck [Aix sponsa] at Lymington. < *Zoologist*, 2d ser., iv, 1869, p. 1563.

1869. WRIGHT, J. Black Swan [Cygnus atratus], &c., on the Solent. < *Zoologist*, 2d ser., iv, 1869, p. 1602.

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1874. HECTOR, J. On Cnemiornis calcitrans, Owen, showing its Affinity to the Lamellirostrate Natatores. < *Trans. and Proc. New Zealand Inst. for* 1873, vi, 1874, pp. 76–84, pll. x–xiv A.

The plates illustrate nearly the whole skeleton in one view, with the skull, sternum, pelvis, and other bones on a larger scale.

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1874. VERRALL, J. H. Hybrid Ducks Breeding. <*Zoologist*, 2d ser., ix, 1874, p. 3836.

From the London 'Field', Oct. 18, 1873.

1874. WHITAKER, J., JR. Egyptian Geese [Chenalopex ægyptiacus] in Nottinghamshire. < *Zoologist*, 2d ser., ix, 1874, p. 3882.

1874. WHITAKER, J. Ducks Breeding in the Rainworth Water. < *Zoologist*, 2d ser., ix, 1874, pp. 4159, 4160.

1875. ANON. Great Flock of Wild Geese in California. < *Rod and Gun*, vii, Nov. 27, 1875, p. 139.

1875. ANON. [EDITORIAL.] Hybrid Wild Ducks. < *Forest and Stream*, iv, Aug. 5, 1875, p. 410.

1875. ANON. Der Eiderente [Somateria mollissima]. < *Aus der Natur*, lxvi, oder n. F., liv, 1875, pp. 277–280.

Nach Zinkel und Preyer's Reise nach Island im Sommer 1860 mitgetheilt.

1875. BAILEY, J. S. The Canada Goose—(Anser [Bernicla] canadensis). <*Forest and Stream*, iv, May 20, 1875, p. 230.

1875. BOARDMAN, G. A. Hybrid Ducks. < *Forest and Stream*, Dec. 9, 1875, p. 276.

Reply to Prof. Le Conte's question (p. 260).

1875. BROOKE, A. B. [On the breeding of Fuligula cristata in Great Britain.] <*Ibis*, v, 3d ser., 1875, pp. 514, 515.

1875. CORBIN, G. B. Nesting of the Teal [Querquedula crecca] in Hampshire. < *Zoologist*, 2d ser., x, May, 1875, pp. 4457, 4458.

1875. CORBIN, G. B. Shieldrake [Tadorna cornuta] near Ringwood. < *Zoologist*, 2d ser., x, June, 1875, p. 4500.

1875. Coues, E. Duck shooting a cheval [on northwestern plains]. <*Rod and Gun*, vi, Apr. 24, 1875, p. 49.

1875. Crosier, E. S. The Whistling Swan [Cygnus americanus, in Kentucky]. <*Am. Nat.*, ix, No. 5, May, 1875, p. 313.

1875. Dalgleish, J. J. Shieldrake [Tadorna cornuta] in the Færoe Islands. <*Zoologist*, 2d ser., x, Mar., 1875, p. 4383.

1875. "Fred." Habits of the Wood Duck—Aix Sponsa. <*Forest and Stream*, iv, July 22, 1875, p. 374.

1875. Garrod, A. H. On the Form of the Lower Larynx in certain Species of Ducks. <*P. Z. S.*, Mar. 2, 1875, pp. 151–156, figg. 1–7.

Conditions of the larynx in some rare *Anatidæ* not referred to by either Eyton or Yarrell. There are figured the parts of *Sarcidiornis melanota* (f. 1 ♂, 2 ♀), *Rhodonessa caryophyllacea* (f. 3 ♀, 4, 5 ♂), and *Metopiana peposarca* (f. 6, 7 ♂).

1875. Gurney, J. H. Longevity of a Wild Duck [Anas boschas, æt. 22]. <*Zoologist*, 2d ser., x, July, 1875, p. 4541.

1875. Hapgood, W. Brant Geese; (Anser bernicla—Linn.) Their habits—migration—breeding-places. <*Forest and Stream*, v, Sept. 2, 1875, p. 49.

1875. Lamberton, A. B. Canvas-back duck, (Anas [Fuligula] Vallisneria—Wilson.) <*Rod and Gun*, vi, Apr. 17, 1875, pp. 34, 35.

With special reference to Chesapeake Bay.

1875. Le Conte, J. L. Is hybridity in ducks increasing? <*Forest and Stream*, v, Dec. 2, 1875, p. 260.

Information asked, with comments on the bearings of the case, if it be so; with editorial remarks appended. The answers received failed to confirm Prof. Le Conte's supposition.

1875. Leidy, [J.] On Psorosperms in a Mallard Duck [Anas boschas]. <*Proc. Acad. Nat. Sci. Phila.*, 1875, p. 125.

1875. Newman, E. Food of Wild Duck. <*Zoologist*, 2d ser., x, Dec., 1875, p. 4732.

1875. Nicholls, R. P. Longtailed Duck [Harelda glacialis] in Kingsbridge Estuary. <*Zoologist*, 2d ser., x, Nov., 1875, p. 4697.

1875. Rodd, E. H. Graylag Goose [Anser cinereus] near Penzance. <*Zoologist*, 2d ser., x, May, 1875, p. 4459.

1875. [Sclater, P. L.] [Breeding of Anas pœcilorhyncha in the Society's Menagerie.] <*P. Z. S.*, Nov. 2, 1875, p. 528.

1875. Smith, Greene. [Habitat of Bernicla brenta,] Brant. <*Rod and Gun*, vii, Dec. 18, 1875, p. 185. See also pp. 200, 211, 232, 242, 306, 312.

1875. Sterling, E. Brant [Bernicla brenta]. <*Rod and Gun*, vii, Dec. 25, 1875, p. 200.

Do not occur in Lake Erie.

1875. Sharpe, R. B. Description of an apparently new Species of Teal [Querquedula eatoni] from Kerguelen's Island. <*Ibis*, 3d ser., v, 1875, pp. 328, 329.

1875. "Teal." [R. L. Newcomb.] [Response to Prof. Le Conte's question, p. 260, as to hybridity in Ducks.] <*Forest and Stream*, v, Dec. 9, 1875, p. 276.

1875. "Tom Tramp." Wild Goose [Bernicla canadensis] shooting on the Western Prairies. <*Rod and Gun*, vi, Apr. 24, 1875, p. 54.

1875. Van Beneden, P. J. Un oiseau fossile nouveau des cavernes de la Nouvelle-Zélande. <*Gerv. Journ. de Zool.*, iv, 1875, pp. 267–272.

Anas finschi, p. 271.—Extrait des *Ann. de la Soc. Géol. de Belgique*, t. ii, p. 123.

1876. Allen, J. A. Breeding of the Canada Goose [Bernicla canadensis] in trees. <*Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, p. 50.

1876. Allen, J. A. Anser [Chen] rossii in Oregon. <*Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, p. 52.

1876. ANON. [Attachment of a domestic Goose to its keeper.] < *Rod and Gun*, viii, Apr. 1, 1876, p. 7.

1876. ANON. [Habits of Fuligula vallisneria.] < *Rod and Gun*, vii, Feb. 12, 1876, p. 313.
From "Philadelphia Times."

1876. ANON. [Enormous abundance of] Wild Geese [Bernicla canadensis] in L[ouisian]a. < *Rod and Gun*, ix, Dec. 30, 1876, p. 202.

1876. "ARROW." Brant [Bernicla brenta, in Illinois]. < *Rod and Gun*, viii, May 13, 1876, p. 99.

1876. BAGOT, C. F. A. Longtailed Duck [Harelda glacialis] at Hunstanton. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4766.

1876. BAIRD, S. F. [Information wanted concerning Camptolæmus labradorius.] < *Forest and Stream*, vi, Apr. 6, 1876, p. 133. See pp. 181, 197.

1876. BAILEY, J. H. [Hybridity in Ducks.] < *Forest and Stream*, v, Jan. 27, 1876, p. 388.
Refers to and criticizes statement (see p. 339) that hybrid Ducks were fertile at Mt. Auburn; an editorial [Ingersoll, E.] note appended reaffirms the truth of the fact questioned.

1876. BOARDMAN, G. A. The Labrador duck [Camptolæmus labradorius]. < *Forest and Stream*, vi, Apr. 27, 1876, p. 181.
Formerly common in Bay of Fundy. See pp. 133, 197.

1876. BOYES, F. Rust-colour on the Breast of Teal [Querquedula crecca]. < *Zoologist*, 2d ser., xi, Nov., 1876, pp. 5168, 5169.

1876. COUES, E. Coues to "Boone." < *Rod and Gun*, vi, Jan. 15, 1876, p. 248. See also pp. 232, 242.
Sustains truth of "Boone's" assertion that he shot *Bernicla brenta* inland.

1876. COUES, E. Dr. Coues on Brant, etc. < *Rod and Gun*, viii, Apr. 1, 1876, p. 8.
Reply to Greene Smith's remarks, vol. vii, p. 312.

1876. COUES, E. The Labrador Duck [Camptolæmus labradorius]. < *Am. Nat.*, x, 1876, p. 303.
Offer of £40 for a good pair of *Camptolæmus labradorius*, on the part of H. E. Dresser.

1876. COVERT, A. B. The Labrador duck [Camptolæmus labradorius]. < *Forest and Stream*, vi, May 4, 1876, p. 197. See pp. 133 and 181.
Specimen taken at Delhi, Mich., Apr., 1872.

1876. DALGLEISH, J. J. Velvet Scoter [Œdemia fusca]. < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5126.

1876. DARRAGH, T. Edible Qualities of the Shoveller Duck [Spatula clypeata]. < *Zoologist*, 2d ser., xi, May, 1876, p. 4930.

1876. ESTEY, T. H. [Change of plumage by male of Anas boschas in summer.] < *Forest and Stream*, v, Jan. 13, 1876, p. 356.

1876. ESTEY, T. H. Hybrid Ducks. < *Forest and Stream*, v, Jan. 27, 1876, p. 388.
Rare in California; cases noted.

1876. "F. J. C. S." Crippled Birds. < *Rod and Gun*, vii, Mar. 18, 1876, p. 387.
Example of knitting of wing-bone of a mallard, and argument that wounded Ducks often recover from injuries.

1876. FOULKS, O. D. Ducks—The Idea. < *Rod and Gun*, vii, Feb. 26, 1876, p. 339.
Regarding *Bucephala albeola* and other edible species.

1876. [GERVAIS, P.] Owen (Richard): Restauration du squelette du Cnemiornis calcitrans et remarques sur les affinités de cet Oiseau avec les Lamellirostres (Trans. zool. Soc. London, t. IX, p. 253, pl. xxxv–xxxix, 1875). < *Gerv. Journ. de Zool.*, v, 1876, pp. 75, 76.

1876. [GERVAIS, P.] Hector (J.): Sur le Cnemiornis calcitrans, Owen, Oiseau fossile de la Nouvelle-Zélande; pour montrer ses affinités avec les Palmipèdes (Trans. and Proceed. New-Zealand Institut, t. IV, p. 76, pl. x à xv, 1874.—Proceed. zool. Soc. London, 1873, p. 763). < *Gerv. Journ. de Zool.*, v, 1876, pp. ———.

1876. Gurney, J. H. [Remarks on the breeding of the Polish Swan (Cygnus immutabilis) in captivity.] < *P. Z. S.*, June 6, 1876, p. 466.

1876. Gurney, J. H. Curious Capture of Scoter Duck [Œdemia nigra]. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4764.

1876. Gurney, J. H., Jr. [Remarks on Exhibition of Anser erythropus from Egypt.] < *P. Z. S.*, May 2, 1876, p. 414.

1876. Gurney, J. H., Jr. The Edible Qualities of the Shoveller Duck [Spatula clypeata]. < *Zoologist*, 2d ser., xi, Feb., 1876, pp. 4802, 4803.

1876. Gurney, J. H., Jr. Goosander [Mergus merganser] at Slapton Ley. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4803.

1876. Gurney, J. H., Jr. Wigeon [Mareca penelope]. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4803.

1876. Gurney, J. H., Jr. The Original and correct Spelling of Shieldduck. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4846.

"Sheld" = particoloured.

1876. Gurney, J. H., Jr. Hooded Merganser [Lophodytes cucullatus]. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4847.

1876. Gurney, J. H., Jr. King Duck [Somateria spectabilis] in Leadenhall Market. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4863.

1876. Gurney, J. H., Jr. The Labrador Duck [Camptolæmus labradorius]. < *Zoologist*, 2d ser., xi, May, 1876, pp. 4929, 4930.

1876. Gurney, J. H., Jr. Lesser Whitefronted Goose [Anser minutus]. < *Zoologist*, 2d ser., xi, May, 1876, p. 4930.

1876. Gurney, J. H., Jr. Lesser Whitefronted Goose [Anser minutus]. < *Zoologist*, 2d ser., xi, July, 1876, p. 5006.

1876. Gurney, J. H., Jr. Varieties of the Teal [Querquedula crecca]. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5047.

1876. Gurney, J. H., Jr. The Polish Swan [Cygnus immutabilis]. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5047.

1876. Gurney, J. H., Jr. Food of the Redbreasted Merganser [Mergus serrator]. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5085.

1876. Harvie-Brown, J. A. Varieties of the Teal [Querquedula crecca]. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5085.

1876. Haymond, R. Note on the Blue Goose [Anser cœrulescens, in Indiana]. < *Am. Nat.*, x, No. 6, June, 1876, p. 374.

1876. Howell, T. H. The Barnacle Goose [Bernicla leucopsis, in La Salle County, Illinois]. < *Forest and Stream*, vii, Nov. 23, 1876, p. 245.

1876. "J. H. D." "Butter-Balls." < *Rod and Gun*, vii, Mar. 4, 1876, p. 355.

Defense of edible qualities of *Bucephala albeola*.

1876. [Ingersoll, E.] Cultivating wild rice to attract [wild] fowl. < *Forest and Stream*, vii, Sept. 7, 1876, p. 72. See p. 137.

1876. [Ingersoll, E.] Hybrid Duck[s in Mt. Auburn cemetery]. < *Forest and Stream*, v, Jan. 6, 1876, p. 339. Also p. 388.

1876. Kendall, C. G. The Barnacle Goose [Bernicla leucopsis]. < *Forest and Stream*, vii, Oct. 26, 1876, p. 181.

Notice of capture of an individual on Long Island, N. Y.

1876. Kendall, J. R. More about the Barnacle Goose [Bernicla leucopsis]. < *Forest and Stream*, vii, Dec. 7, 1876, p. 276. See p. 245.

Further details regarding the specimen referred to in the preceding title.

1876. Long, J. W. Brant [Bernicla brenta, in the interior]. < *Rod and Gun*, viii, July 22, 1876, p. 260.

1876. MACHEN, W. H. Brant [Bernicla brenta, in Lake Erie]. < *Rod and Gun*, vii, Jan. 15, 1876, p. 242. See also pp. 185, 200.

1876. MATHEW, G. F. Hooded Merganser [Lophodytes cucullatus]. < *Zoologist*, 2d ser., xi, June, 1876, p. 4958.

1876. NICHOLLS, R. P. Smew [Mergellus albellus] at Slapton Ley. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4803.

1876. PEACOCK, A. Variation of Colour in the Teal [Querquedula crecca]. < *Zoologist*, 2d ser., xi, Dec., 1876, p. 5180.

1876. POOLE, R. Reported Occurrence of the King Duck [Somateria spectabilis] at Maldon. < *Zoologist*, 2d ser., xi, Jan., 1876, p. 4766.

1876. PRINCE, H. R. Smew [Mergellus albellus] at Taunton. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4847.

1876. [PRINCE, H. R.] Smew [Mergellus albellus] near Old Malton. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4847.

1876. PRIOR, C. M. Duck nesting in a Pollard Willow. < *Zoologist*, 2d ser., xi, July, 1876, pp. 5006, 5007.

1876. RICE, F. L. The True Brant [Bernicla brenta] in Wisconsin. < *Rod and Gun*, viii, Aug. 5, 1876, p. 293.

1876. RODD, E. H. Longtailed Duck [Harelda glacialis] near Padstow, Cornwall. < *Zoologist*, 2d ser., xi, Dec., 1876, p. 5180.

1876. ROWLEY, G. D. Chen albatus. (Cassin's Snow-Goose.) < *Rowl. Orn. Misc.*, ii, pt. v, Oct., 1876, pp. 93–100, pl. xlvii.

An extended article on Snow Geese in general, with special reference to the capture of *C. albatus* in Ireland, Nov., 1871.

1876. SCLATER, P. L., *and* SALVIN, O. A Revision of the Neotropical Anatidæ. < *P. Z. S.*, Apr. 4, 1876, pp. 358–412, pl. xxxiv.

Introduction, p. 358; Preliminary remarks, p. 358; Synopsis of the species, p. 369; Table of geographical distribution, p. 409.—*Anatidæ* divided into seven subfamilies. *Anser* (3), *Bernicla* (7 or 8), *Chenalopex* (1), *Cygnus* (2), *Dendrocygna* (5), *Sarcidiornis* (1), *Cairina* (1), *Anas* (5), *Heteronetta* (1), *Querquedula* (10), (*Q. andium*, pl. 34), *Dafila* (3), *Mareca* (2), *Spatula* (2), *Aix* (1), *Metopiana* (1), *Fuligula* (5), *Clangula* (2), *Œdemia* (1), *Tachyeres* (Owen, *Tr. Z. S.*, ix, 1875, 254) (1), *Erismatura* (3), *Merganetta* (3), *Mergus* (2). These spp. are worked out in a masterly manner, with copious synonymy, diagnosis, habitat, and criticism; forming by far the most satisfactory presentation of Neotropical *Anatidæ* extant.

1876. [SCLATER, P. L.] [On the species of Sarcidiornis.] < *P. Z. S.*, Nov. 7, 1876, pp. 694, 695, pll. lxvii, lxviii.

Pl. 67, *S. melanonota;* pl. 68, *S. carunculata.*

1876. SMITH, GREENE. Brant [Bernicla brenta]. < *Rod and Gun*, vii, Feb. 12, 1876, p. 312.

Replies to criticisms of his statement (p. 185, Dec. 18, 1875) that *Bernicla brenta* was never found inland, confessing his mistake. Also comments and inquiries upon the different forms of American *Anseres.*

1876. SOUTHWELL, T. The Polish Swan [Cygnus immutabilis]. < *Zoologist*, 2d ser., xi, Sept., 1876, pp. 5084, 5085.

1876. STANSELL, F. Common Scoter [Œdemia nigra] at Minehead. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4883.

1876. STANSELL, F. Female Smew [Mergellus albellus] near Curry Rivel. < *Zoologist*, 2d ser., xi, May, 1876, p. 4930.

1876. STEVENSON, H. [Letter on the rusty coloring matter of the heads of Swans.] < *Ibis*, 3d ser., vi, Apr., 1876, pp. 276, 277.

Determined by F. Kitton to be peroxide of iron, Fe_2O_3. The rusty tinge probably produced by contact with ferruginous sand.

1876. STREETS, T. H. Description of a New Duck from Washington Island [Chaulelasmus couesi]. < *Bull. Nutt. Ornith. Club*, i, No. 2, July, 1876, pp. 46, 47.

1876. "UPPER DES MOINES." Brant and Geese. <*Rod and Gun*, vii, Feb. 12, 1876, p. 306.

Habits, nesting, etc., in Iowa.

1877. ABBOTT, C. C. Leaves from my Note-Book. The Wood Duck [Aix sponsa] and Her Young. <*The Country*, i, Dec. 29, 1877, p. 115.

Fledglings carried down from nest to water on shoulders of the mother.

1877. AKHURST, J. Capture of the Egyptian Goose [Chenalopex ægyptiacus] on Long Island. <*Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, p. 52.

1877. ANON. The Canada Goose [Bernicla canadensis]. <*Forest and Stream*, viii, Feb. 15, 1877, p. 17.

1877. ANON. A Proof of Instinct. <*Forest and Stream*, viii, Mar. 22, 1877, p. 96.

Wild Geese supporting a wounded one in the air.

1877. ANON. Tame Wild Geese. <*Forest and Stream*, viii, June 7, 1877, p. 280.

Reprinted from St. Louis "Republican."

1877. ANON. Shells in red head duck's [Fuligula americana] craw. <*Forest and Stream*, ix, Dec. 20, 1877, p. 380. See pp. 266, 285, 327.

1877. ANON. What our Ducks Eat [on North Atlantic coast]. <*Forest and Stream*, ix, Nov. 29, 1877, p. 327. See p. 380.

1877. ANON. What Red Head Ducks [Fuligula americana] Eat [Ruppia maritima, etc.]. <*Forest and Stream*, ix, pp. 266, 285. See pp. 327, 380.

1877. "AUDUBON." Domesticated Wild Geese [Bernicla canadensis]. <*Forest and Stream*, viii, Mar. 1, 1877, p. 50. See pp. 96, 177.

1877. COUES, E. Note on the Cinnamon Teal (Querquedula cyanoptera [in Colorado]). <*Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, p. 51.

1877. [COUES, E.] Birds. <*The Mirror* (Baltimore, Md.), Dec., 1877.

Notices of certain North American *Anatidæ*, from "Birds of the Northwest."

1877. "G. P." Habits of Domesticated Wild Geese [Bernicla canadensis]. <*Forest and Stream*, viii, March 22, 1877, p. 96. See pp. 50, 177.

1877. GURNEY, J. H. Note on the Polish Swan [Cygnus immutabilis]. <*P. Z. S.*, June 19, 1877, pp. 579, 580.

1877. GURNEY, J. H., JR. [Letter on the Tracheæ of certain Anatidæ.] <*Ibis*, 4th ser., i, July, 1877, pp. 395, 396.

1877. "H. H." Domestication of the Canada Goose [Bernicla canadensis]. <*Forest and Stream*, viii, April 26, 1877, p. 177. See pp. 50, 96.

1877. LAWRENCE, G. N. Occurrence of the Barnacle Goose (Bernicla leucopsis) on Long Island, N. Y. <*Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 18.

Covering a letter from J. R. Kendall. Including note by R. Deane.

1877. LE BARON, J. F. Habits of the Whistler [Bucephala americana]. <*Am. Nat.*, xi, No. 1, Jan., 1877, p. 44, 45.

1877. "P." Brant [Bernicla brenta] in Texas. <*Forest and Stream*, ix, Dec. 27, 1877, p. 397.

1877. "RECAPPER." [T. S. ABBOTT.] The Dusky Duck [Anas obscura]. <*The Country*, i, Dec. 8, 1877, p. 74.

1877. "R. H." Domesticated Wild Geese [Bernicla canadensis] Breeding. <*Forest and Stream*, viii, July 5, 1877, p. 360.

1877. ROWLEY, G. D. Somateria [Camptolæmus] labradoria (J. F. Gmelin). (The Pied Duck.) <*Rowl. Orn. Misc.*, ii, pt. vi, Jan., 1877, pp. 205–224, pl. lv, and five others, not numbered.

A very complete monograph of this rare and apparently moribund species, including a list of 33 known specimens. Pl. 55 figures the bird, both sexes, in colors. The other five plates show sternums, heads, and feet of various Eiders.

1877. Sclater, P. L. Notice of an apperently new Species of Spur-winged Goose of the Genus Plectropterus [niger]. < *P. Z. S.*, Feb. 5, 1877, pp. 47, 48, pl. vii.

1877. "Semi-Occasional." The Habits of Wild Geese [Bernicla canadensis]. How to Capture the Birds. < *Forest and Stream*, vii, Feb. 1, 1877, p. 412.

1877. Smith, Greene. Brant [Bernicla brenta; habitat of, investigated]. < *Forest and Stream*, Nov. 15, 1877, p. 285.

1877. Trimen, R. [Letter on Sarcidiornis, with reference to P. Z. S., 1876, pp. 694, 695.] < *P. Z. S.*, Nov. 6, 1877, p. 683.

1877. Vibert, P. Breeding of the Wild Goose [Bernicla canadensis] in Confinement. < *Forest and Stream*, vii, Jan. 18, 1877, p. 373. See p. 405.

1877. Yarrow, H. C. The Black Duck [Anas obscura] in the Rocky Mountains. < *Forest and Stream*, viii, Feb. 8, 1877, p. 4.

Correcting previous remark by editor that *Anas obscura* had not been found West previous to record on p. 404 of Vol. VII.

1878. A[llen], J. A. Rowley's "The Pied Duck [Camptolæmus labradorius]." < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 79, 80.

Review of this monographic essay.

1878. Allen, J. A. Occurrence of three Species of Sea-Ducks [Œdemia americana, Œ. fusca, Œ. perspicillata] at St. Louis, Missouri. < *Bull. Nutt. Ornith. Club*, iii, No. 3, July, 1878, pp. 148, 149.

1878. Brewster, W. Occurrence of the Whistling Swan (Cygnus americanus) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 198, 199.

With full particulars of the capture.

1878. Brewster, W. Breeding of the Hooded Merganser (Mergus cucullatus) in Florida. < *Bull. Nutt. Ornith. Club*, iii, No. 1, Jan., 1878, p. 40.

1878. B[oiseau], R. F. Our Washington Letter [concerning Ducks on the Potomac]. < *Forest and Stream*, ix, Jan. 17, 1878, p. 458.

1878. Coues, E. Peculiar Feathers of the young Ruddy Duck [Erismatura rubida]. < *Am. Nat.*, xii, No. 2, 1878, p. 123, 124, fig. 1.

1878. Goss, N. S. The true Brant [Bernicla brenta] in Kansas. < *Forest and Stream*, ix, Jan. 10, 1878, p. 430.

1878. "H. G." A Domesticated Teal [Querquedula discors]. < *Forest and Stream*, x, March 14, 1878, p. 95.

1878. "Homo." [C. S. Westcott.] The Brant of the United States. < *Chicago Field*, Feb., 1878, p. 4, fig.

Discussing these Geese, with special reference to *Bernicla nigricans*, which is figured.

1878. Jones, J. M. The Mollusca of Nova Scotia. < *Forest and Stream*, x, March 7, 1878, p. 75.

Note of contents of craw of *Clangula islandica*.

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See *P. Z. S.*, 1877, p. 522. The species is here recharacterized, with figg. of trachea, and pl. of ♂ ♀.

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Supposed hybrid between *Aix sponsa* and *Fuligula ferina americana.*

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1879. Gregg, W. H. Camptolæmus labradorius. < *Am. Nat.*, xiii, No. 2, Feb., 1879, pp. 128, 129.

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1811. MONTAGU, G. Observations on some Peculiarities observable in the structure of the Gannet, Pelecanus [Sula] Bassanus. And an account of a new and curious Insect, discovered to inhabit the Cellular Membrane of that Bird. < *Mem. Wernerian Nat. Hist. Soc.*, i, 1811, pp. 176–193, pl. vii, figs. 1–3.
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Pelecanidæ.

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1839. LICHTENSTEIN, H. Beitrag zur ornithologischen Fauna von Californien nebst Bemerkungen über die Artkennzeichen der Pelikane und über einige Vögel von den Sandwich-Inseln. < *Abhand. Königl. Akad. Wissensch. Berlin aus d. Jahre* 1838, 1839, pp. 417–451, pll. 1–5. (Gelesen Juni 1837.)

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1851. [SUNDEVALL, C. J.] Pelikan [Pelecanus onocrotalus] i Sverige. < *Öfvers. Kongl. Vetensk.-Akad. Förh. för år* 1850, 1851, pp. 184, 185.

1855. BREHM, A. E. Der grosse Pelikan des inneren Nordost-Afrika's, [u. s. w.] < *J. f. O.*, iii, 1855, pp. 92–94.

P. giganteus, sp. n., p. 94, attempted to be distinguished from *P. rufescens*.

1856. TRISTRAM, H. B. Pelican [Pelecanus onocrotalus] found dead on the Coast of Durham. < *Zoologist*, xiv, 1856, p. 5321.

1863. SCHLEGEL, H. Pelecani < *Mus. Nat. Hist. Pays-Bas*, 4e livr., Juillet 1863, pp. pp. 1–44.

The "Pelecani" of this author consist of the six genera oftenest now divided into as many families, as follows:

Fregata, 2 spp.—*Graculus*, 22 spp.—*Plotus*, 3 spp.—*Pelecanus*, 6 spp.—*Sula*, 6 spp.—*Phaeton*, 3 spp. Total of 294 specimens.

1865. GIEBEL, C. [G.] Zur Charakteristik der Pelekane. < *Zeitsch. für die gesammten Naturwiss.*, 1865, pp. 250–257.

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1865. SWINHOE, R. [On Pelecanus philippensis.] < *Ibis*, 2d ser., i, 1865, pp. 111, 112.

1867. BEAL, W. J. The Pelican [Pelecanus erythrorhynchus] in Cayuga Co., N. Y. < *Am. Nat.*, i, 1867, pp. 323, 324.

Note of the occurrence, with extracts from other authors on habits, etc.

1867. MILNE-EDWARDS, A. Note sur l'existence d'un Pélican de grande taille dans les tourbières d'Angleterre. < *Ann. des Sci. Nat.*, 5e sér., viii, 1867, pp. 285–293, pl. 14.

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Indian River, Florida—with reference to statements of W. J. Beal, *ibid.*, p. 323.

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1868. MILNE-EDWARDS, A. Note sur l'existence d'un Pélican de grande taille dans les tourbières d'Angleterre. < *Compt. Rend. de l'Acad. Sci.*, lxvi, 1868, pp. 1242–1244.

Précis de ses observations.

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From *Comptes Rendus*, June 22, 1868, pp. 1242–1244.

1868. [MILNE-EDWARDS, A.] Vorkommen eines grossen Pelikans in den Torfmooren Englands. < *Aus der Natur*, xlvi, oder n. F., xxxiv, 1868, pp. 670, 671.

1868. NEWTON, A. [Exhibition of humerus of a species of Pelican from the Cambridgeshire Fens.] < *P. Z. S.*, xxxvi, 1868, p. 2.

This is the same specimen treated by A. Milne-Edwards in several communications: a bone from a young individual of a large species of *Pelecanus*, doubtfully distinct from *P. onocrotalus*.

1868. SCLATER, P. L. Notes on the Pelicans living in the Society's Gardens. < *P. Z. S.*, xxxvi, 1868, pp. 264–269, pll. xxv, xxvi, and woodcc.

Six or possibly 7 species are named as living as above. These are *Pelecanus onocrotalus*, *P. mitratus*, *P. crispus*, *P. rufescens*, *P. conspicillatus*, and *P. fuscus*, of which the fourth (pl. xxvi) and last (pl. xxv) are figured, together with portions of the head of the first, second, and fourth. A figure is also given of what Mr. Blyth regards as *P. javanicus*, Horsf., from a Syrian example. Notes on all these as well as on three others not exhibited in the Zoological Gardens are given, and a diagnostic list of the 10 species which seem to the author to be well founded.

1869. BAIRD, S. F. [On R. Ridgway's discovery of the deciduous nature of the horny process on the bill of Pelecanus trachyrhynchus.] < *Ibis*, 2d ser., v, 1869, p. 350.

1869. ELLIOT, D. G. A Monograph of the Genus Pelecanus. < *P. Z. S.*, xxxvii, 1869, pp. 571–591, pl. xliv.

Review of the literature.—Characters of the subfamily.—Description, with an extended synonymy and critical annotation, of 9 spp. The pl. represents *P. molinæ.*

1869. GURNEY, J. H. [Occurrence of Pelecanus onocrotalus near Courrière, Pas de Calais.] < *Ibis*, 2d ser., v, 1869, p. 463.

1870. ALLEN, J. A. Occurrence of the Brown Pelican [Pelecanus fuscus] in Massachusetts. < *Am. Nat.*, iv, 1870, p. 58.

1870. BARBOZA DU BOCAGE, J. V. Note sur une nouvelle espèce de Pélican [Pelecanus sharpei]. < *P. Z. S.*, xxxviii, 1870, p. 173.

1870. BARBOZA DU BOCAGE, J. V. Note sur le jeune de l'année du Pelecanus sharpei. < *P. Z. S.*, xxxviii, 1870, p. 409.

1870. MARTIN, L. Aus dem Leben der grauen Pelekane [Pelecanus fuscus] und verwandten Vögel auf der westlichen Erdhälfte. < *Zool. Gart.*, xi, 1870, pp. 37–42.

1871. BARBOZA DU BOCAGE, J. V. Mélanges Ornithologiques. I. Description d'un Pélican apparemment nouveau d'Afrique occidentale et observations sur quelques espèces du même genre. < *Jorn. Sc. Math. Phys. e Nat.*, No. xi, 1871, pp. 166 seq.

In this first part of a paper under the above major head, *P. sharpii* is redescribed (*P. Z. S.*, 1870, pp. 173, 409), with notes on other spp. of the genus, under the special subtitle quoted.

1871. CLARKE, S. C. Pelicans. < *Am. Nat.*, v, 1871, pp. 252, 253.

Biographical notes on *P. trachyrhynchus*, Lake Michigan, and *P. fuscus*, Florida.

1871. GILLMAN, H. The Rough-billed Pelican [Pelecanus trachyrhynchus] on Lake Huron. < *Am. Nat.*, iv, 1871, pp. 758, 759.

1871. NEWTON, A. [Remarks on Exhibition of the Humerus of a Pelican from the Cambridgeshire Fens.] < *P. Z. S.*, xxxix, 1871, pp. 702, 703.

1871. SCLATER, P. L. Additional [P. Z. S., 1868, p. 264] Remarks on certain Species of Pelicans. < *P. Z. S.*, xxxix, 1871, pp. 631–634, pl. li, woodcc.

3 spp. treated, with list of 10. The pl. is *P. sharpii*, the head of which, as well as that of *P. philippensis*, is also figured.

1872. BEMMELEN, A. A. VAN. Fortpflanzung des gemeinen Pelikans (Pelecanus onocrotalus) in Gefangenschaft [zu Rotterdam]. < *Zool. Gart.*, xiii, 1872, pp. 264, 265.

1873. B[AIRD], S. F. Does the Pelican feed its young with its own Blood? < *Am. Nat.*, vii, 1873, p. 170.

Note on substances vomited by various birds, as possible basis in fact for the fable alluded to in the title.

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1876. TOMPKINS, M. [On Pelecanus trachyrhynchus ♀, with the "centre-board."] < *Am. Nat.*, x, No. 5, 1876, p. 313.

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Phaëthontidæ.

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This is merely his monograph of *Phaëthon*, issued with new pagination and the old pagination preserved, and with new full page title and new preface—the latter explaining the reissuing of certain memoirs under the title of Spec. Ornith. Exot., as above given—this present Tentamen monographiæ zoologicæ generis Phaëthon being fasciculus I, or the first of the proposed series.

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Laridæ.

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175–. Gissler, N. Anmerkungen von den Labben, Sterna [Stercorarius parasiticus]. <*Abhandl. d. Schwed. Akad.*, Bd. xv, aus d. J. 1753, pp. 296, 297.

Nicht mir selbst zugänglich: Titel aus Carus u. Engelm. Uebersetzung von d. Originalausgabe.

1762. Lysons, D. A Description of the Cepphus. <*Philos. Trans. for* 1761, lii, pt. i, 1762, pp. 135–139.

Called Aldrovandus's *Cepphus.* It is one of the smaller *Stercorarii.*

1764. Lidbeck, E. G. Beskrifning På en Fiskmås [Larus glaucus] ifrån Lappland. <*Kongl. Svensk. Vetensk.-Acad. Handl.*, xxv, 1764, pp. 149–153.

176–. Lidbeck, E. G. Beschreibung einer lappländischen Fischmoeve [Larus glaucus]. <*Abhandl. d. Schwed. Akad. für* 1764, Bd. xxvi, 176–, pp. 155–158.

Nicht mir selbst zugänglich; Titel aus Carus u. Engelm.

1767. Gunnerus, J. E. Vom diebischen Joen (Larus [Stercorarius] parasiticus L.) männlichen, und der Skua [Stercorarius skua] Hojeri weiblichen Geschlechts. <*Drontheim. Gesell. Schrift.*, iii, 1767, pp. 88–101.

1767. Gunnerus, J. E. Von dem Krykkie (Larus [Rissa] tridactylus). <*Drontheim. Gesell. Schrift.*, iii, 1767, pp. 101–106.

I have seen neither of the two foregoing papers.

1782. Ödmann, S. Anmärkningar om Skrån-Måsen, (Sterna Caspia,). <*Kongl. Vetensk.-Acad. Nya. Handl.*, iii, 1782, pp. 228–231.

1783. Ödmann, S. Utkast til Måse Slågtets [Larus] Historia. <*Kongl. Vetensk.-Acad. Nya Handl.*, iv, 1783, pp. 89–122.

10 Arter anföras, med beskrifn., synon. och historia: 1, *L. glaucus;* 2, *L. niveus*, p. 100 (= *eburneus*); 3, *L. marinus;* 4, *L. fuscus;* 5, *L. canus;* 6, *L. tridactylus;* 7, *L. ichthyætus;* 8, *L. atricilla.*

1786. Ödmann, S. Undersökning om de gamle Auctorers Catarrhactes. <*Kongl. Vetensk.-Acad. Nyt. Handl.*, vii, 1786, pp. 73–78.

The various applications of the word, by Aristotle, Oppian, Linnæus, and others.

1787. Walbaum, J. J. Beschreibung der bunten Sturm-Mewe ♂ u. ♀ [Larus marinus L.] und der weissgrauen [L. cinereus]. <*Schriften d. Berlin. Gesell. Naturf. Freunde*, viii, St. ii, 1787, pp. 92–116.

Not seen: title from Carus and Engelmann; others cite the title in very different words, and as of date 1788.

1791. Kästner, A. G. Hat Linné mit Recht den Teufel tumm genannt [Sterna]? <*Voigt's Magas.*, vii, St. ii, 1791, pp. 1–5.

Not seen.

1793. Ödmann, S. Anmärkning rörande Larus cinerarius. Linn. <*Kongl. Vetensk.-Acad. Nya Handl.*, xiv, 1793, pp. 307–311.

1808. Cuvier, F. Observations sur quelques espèces de Goélands [Lari]. <*Ann. du Mus. d'Hist. Nat.*, xi, 1808, pp. 283–292.

Sur les difficultés qu' offre l'étude de ces oiseaux—Observations générales—Du goéland à manteau voir—Du grisard et du goéland à manteau gris—De la mouette tachetée—cendrée—rieuse—Les différences que les goélands d'une même espèce présentent—Examen des ces différences et des caractères qui distinguent les espèces.

1818. Richmann, —. Etwas an Kotzebue. <*Isis*, Jahrg. ii, 1818, pp. 2130–2136.

Inhalt: Mewe, die man Kutgegehf nennet; Struntjäger; der Ibis und der Struntjäger (Gedichte, mit Abbild.).

1818. SABINE, J. An Account of a new Species of Gull [Larus sabini] lately discovered on the West Coast of Greenland. < *Trans. Linn. Soc.*, xii, pt. ii, 1818, pp. 520–523, pl. xxix.

Larus sabini, p. 522, pl. xxix.

1819. FLEMING, J. Observations on the Arctic [Cataractes parasiticus] and Skua [C. vulgaris] Gulls of British Ornithologists. < *Edinb. Philos. Journ.*, i, 1819, pp. 97–104.

Historical, descriptive, and critical, with synonymy and comparison.

1820. SABINE, J. Ueber eine neue, kürzlich an der Westkuste von Grönland entdeckte Möven-Gattung [Larus sabini]. < *Oken's Isis*, Jahrg. iv, 1820, (*Lit. Anz.*), pp. 138, 139.

Uebers. aus d. *Trans. Linn. Soc.*, xii, pt. ii, 1818, pp. 520–523.

1821. EDMONSTON, A. Observations on the Natural History of some species of the Genus Larus, or Gull Tribe. < *Edinb. Philos. Journ.*, v, 1821, pp. 168–173.

This article, marked Part I, treats only of *Stercorarius parasiticus*, giving its characters, habits, &c.

1822. EDMONSTON, L. Account of a New Species of Larus, shot in Zetland. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. i, 1822, pp. 176–181.

Read Mar., 1821. Description and account of distribution and habits. The species is not technically named, but in a succeeding article it is called *L. islandicus*.

1822. EDMONSTON, L. Additional Account of the Iceland Gull [Larus islandicus]. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. i, 1822, pp. 182–185.

Here named *L. islandicus*. Said to have been first described in 1814.

1822. EDMONSTON, L. Remarks on the Larus [Stercorarius] Parasiticus or Arctic Gull; and on the Larus Rissa [tridactyla] or Kittiwake; with an Account of the Greenland Kittiwake;—and on Colymbus Grylle. < *Edinb. Philos. Journ.*, vii, 1822, pp. 90–105.

Chiefly on the habits of these birds.

1823. EDMONSTON, L. Notice of a Specimen of the Larus [Pagophila] eburneus, or Ivory Gull, shot in Zetland; and further Remarks on the Iceland Gull [Larus islandicus]. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. ii, 1823, pp. 501–507.

The *Larus islandicus* of Edmonston of 1822 proving to be *L. glaucus*, the name *islandicus* is very improperly "transferred" to another species (the *L. leucopterus* of Faber).

1823. TRAILL, T. S. Description of a New Species of Larus [scoresbii]. < *Mem. Wernerian Nat. Hist. Soc.*, iv, pt. ii, 1823, pp. 514–516, pl. xvi, fig. 1.

1824. KAUP, [J. J.] Beschreibung einer neuen Seeschwalbe [Sterna nitzschii]. < *Oken's Isis*, Jahrg. viii, 1824, p. 153, 154.

Description of *S. nitzschii*, sp. n., p. 153, giving also the specific characters of *S. hirundo* L.

1824. MACGILLIVRAY, W. Descriptions, Characters, and Synonyms of the different Species of the Genus Larus, with Critical and Explanatory Remarks. < *Mem. Wernerian Nat. Hist. Soc.*, v, pt. i, 1824, pp. 247–276.

After a circumstantial account of the genus considered individually, the species are taken up in order. *L. roseus*, p. 249; *L. bathyrinchus* [sic—*lege bathyrhynchus*], p. 253; *L. argenteus*, p. 264 (renamed from *argentatus*); *L. arcticus*, p. 268 (=*argentatus* Sabine); *L. glacialis*, p. 270 (=*glaucus* Temm.), spp. nn. These and some other species are very elaborately treated, monographically, excepting the first, which is only named "provisionally" (the name *roseus*, by the way, afterward excited some acrimonious personality, as anticipating *rossii* of Richardson). The paper looks as if it were but a part of the article, but it is not marked to be continued, and no more has been found. It is one of the soundest papers ever written on Gulls.

1825. LESSON, [R.] P. Description d'une espèce inédite de Goeland (Larus [scoresbii]); par Th. Stewart Traill . . . < *Féruss. Bull.*, 2ᵉ sect., vi, 1825, p. 94.

Larus scoresbii, Traill, *Mem. Wern. Soc.*, iv, pt. ii, 1823, pp. 514–516.

1825. LESSON, [R.] P. Descriptions, Charactères et Synonymie de diverses espèces du genre Goeland ou Mouette [Larus], avec des Remarques critiques et explicatives; par W. Macgilivray. < *Féruss. Bull.*, 2ᵉ sect., vi, 1825, pp. 94–96.

Extrait des *Mém. Wern. Soc.*, v, pt. i, 1824, pp. 247–276, *q. v.*

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Mem. Wern. Soc., iv, 1822, pp. 176–181.

1826. Lesson, [R.] P. Note sur un individu de l'espèce du Larus [Pagophila] eburneus, tué dans l'une des îles Shetland; et quelques remarques sur la Mouette d'Islande (Larus glaucus [islandicus]); par Laurence Edmonston. . . . < *Féruss. Bull.*, 2e sect., vii, 1826, p. 113.
Mem. Wern. Soc., iv, pt. ii, 1823, p. 501–507.

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Isis, 1824, p. 153.

1826. Payraudeau, [B. C.] Description de deux espèces nouvelles d'oiseaux, appartenant aux genres Mouette et Cormoran. < *Ann. des Sci. Nat.*, viii, 1826, pp. 460–465.
Larus audouinii, p. 462: *Carbo desmarestii*, p. 464.

1827. L[uroth], S. G. Description de deux espèces nouvelles d'oiseaux appartenant aux genres Mouette et Cormoran; par M. Payraudeau. . . . < *Féruss. Bull.*, 2e sect., xi, 1827, p. 302.
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Ueber d. *Laridæ*. Nebst Nachschrift von Brehm, pp. 899–900.

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1831. Yarrell, W. [On the characters of Larus capistratus, Temm.] < *P. Z. S.*, i, 1831, p. 151.

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1835. THOMPSON, W. [Laridæ an der Nordostküste Irlands.] < *Oken's Isis*, Bd. xxviii, 1835, p. 523.

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1844. Fisher, W. R. Note on the occurrence of Richardson's Skua [Stercorarius parasiticus] at Great Yarmouth. < *Zoologist*, ii, 1844, p. 795.

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The ornithological portion relates to species of *Anous.*

1845. Banister, J. D. A few Notes on the recent Change of the Herbage on Pilling Moss. < *Zoologist*, iii, 1845, pp. 881–884.
As caused by the ordure of certain *Laridæ.*

1845. Barclay, J G. Domesticated Herring Gulls [Larus argentatus] breeding in a garden. < *Zoologist*, iii, 1845, p. 1138.

1845. FRASER, L. [Larus bridgesii, sp. n.] < *P. Z. S.*, xiii, Feb. 25, 1845, p. 16.
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1845. GOULD, J. On the genus Anous, Leach (Megalopterus, Boie). < *P. Z. S.*, xiii, 1845, pp. 103, 104.
Descriptive synopsis of 6 spp.: *A. leucocapillus*, *A. melanops*, p. 103; *A. cinereus*, *A. parvulus*, p. 104, spp. nn.

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1845. GOULD, J. [Sterna gracilis.] < *Ann. Mag. Nat. Hist.*, xvi, 1845, p. 346.
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1845. HUSSEY, A. Note on the occurrence of the Pomerine Skua [Stercorarius pomatorhinus] in Sussex. < *Zoologist*, iii, 1845, p. 880.

1845. RODD, E. H. Occurrence of the Little Gull [Larus minutus] in Cornwall. < *Zoologist*, iii, 1845, p. 880.

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1847. CHARLESWORTH, E. Occurrence of a Specimen of Larus Rossii [Rhodostethia rosea] near Tadcaster. < *Zoologist*, v, 1847, pp. 1782–1785.
With synonymy and description, &c. From *Proc. Yorkshire Philos. Soc.*

1847. EDITORIAL. Larus eburneus [Pagophila eburnea, at Penzance]. < *Ann. Mag. Nat. Hist.*, xix, 1847, p. 213.
From *Cornwall Royal Gazette.*

1847. FALCK, V. Description d'un examplaire du Larus leucopterus de Faber, tué près de la Ville d'Helsingfors en hiver 1836. < *Acta Soc. Sci. Fennicæ*, ii, 1847, pp. 529–531. Fig. 1 of pl. facing p. 532.

1847. FALCK, V. Notices sur le Larus glaucus rencontré dans le Golfe de Finlande. < *Acta Soc. Sci. Fennicæ*, ii, 1847, pp. 655–659. Fig. 2 of pl. facing p. 532.

1847. FRY, D. H. Occurrence of the Glaucous Gull [Larus glaucus] at Ramsgate. < *Zoologist*, v, 1847, p. 1642.

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From his "Wild Sports in the Highlands."

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1848. CABOT, S. JR. A Comparison between Sterna Cantiaca, Gm., of Europe, and Sterna acuflavida, nobis, hitherto considered identical with S. Cantiaca, and a description of a new species of Wren. < *Ann. Mag. Nat. Hist.*, 2d ser., ii, 1848, pp. 364, 365.

From *Proc. Bost. Soc. Nat. Hist.*, ii, Nov. 17, 1847, pp. 257–259.

1848. COOKSON, J. Habits of Sea Gulls (Larus ———?). < *Zoologist*, vi, 1848, p. 2149.

1848. DUNN, R. Occurrence of the Glaucous Gull (Larus glaucus) and Iceland Gull (Larus leucopterus) in Shetland. < *Zoologist*, vi, 1848, p. 2070.

1848. ELLMAN, J. B. Occurrence of the Ivory Gull (Larus [Pagophila] eburneus) at Hastings. < *Zoologist*, vi, 1848, p. 2304.

1848. FISHER, W. R. Young of the Glaucous Gull (Larus glaucus). < *Zoologist*, vi, 1848, p. 2070.

1848. GORDON, G. Answer [Zool., p. 2071] respecting Larus maximus. < *Zoologist*, vi, 1848, p. 2304.

1848. JOHNSON, F. W. Occurrence of the Masked Gull (Larus capistratus) at Aldborough. < *Zoologist*, vi, 1848, p. 2231.

1848. MORRIS, B. R. Note on the Black-backed [Larus fuscus] and Glaucous Gulls [L. glaucus]. < *Zoologist*, vi, 1848, pp. 2070, 2071.

1848. MORRIS, B. R. Inquiry respecting Larus maximus. < *Zoologist*, vi, 1848, p. 2071.

Cf. *tom. cit.*, p. 2304.

1848. NEWMAN, E. Occurrence of the Little Gull (Larus minutus) at Belfast. < *Zoologist*, vi, 1848, p. 2069.

1848. NEWMAN, E. Occurrence of Bonaparte's Gull (Larus Bonaparti) at Belfast. < *Zoologist*, vi, 1848, pp. 2069, 2070.

1848. NEWTON, A. Occurrence of Buffon's Skua (Lestris parasiticus) near Thetford. < *Zoologist*, vi, 1848, p. 2149.

1848. PRATER, T. Occurrence of the Roseate Tern (Sterna Dougallii) near Bicester. < *Zoologist*, vi, 1848, pp. 2230, 2231.

1848. ROUNDELL, H. Occurrence of the Black Tern (Sterna nigra), &c., near Oxford. < *Zoologist*, vi, 1848, p. 2191.

1848. THOMPSON, W. Note on the Occurrence of the Bonapartian Gull (Larus Bonapartii, Rich. and Swains.) for the first time in Europe. < *Ann. Mag. Nat. Hist.*, 2d ser., i, 1848, pp. 192–197.

With note also on the occurrence of *L. sabinii* and *L. minutus*.

1849. BIRD, W. F. W. Capture of the Black Tern (Sterna nigra) at Chertsey. < *Zoologist*, vii, 1849, p. 2500.

1849. BURTON, W. D. Occurrence of the Caspian Tern (Sterna Caspia) near Great Yarmouth. < *Zoologist*, vii, 1849, pp. 2499, 2500.

1849. BURY, C. A. The Masked Gull (Larus capistratus). < *Zoologist*, vii, 1849, p. 2457.

1849. ELLMAN, J. B. Note on [flight of] Sea Gulls. < *Zoologist*, vii, 1849, pp. 2456, 2457.

1849. **Gurney, J. H.** Occurrence of the Gull-billed Tern (Sterna anglica) at Yarmouth. <*Zoologist*, vii, 1849, p. 2569.

1849. **Gurney, J. H.** Occurrence of the Gull-billed Tern (Sterna anglica) near Yarmouth. <*Zoologist*, vii, 1849, p. 2592.

1849. **Higgins, E. T.** Occurrence of Buffon's Skua (Lestris parasitica) near Redcar. <*Zoologist*, vii, 1849, p. 2592.

1849. **Johnson, H.** Occurrence of Rare Gulls [Lestris "arcticus," Larus glaucus] near Liverpool. <*Zoologist*, vii, 1849, p. 2422.

1849. **Smith,** *Rev.* **James.** Occurrence of the Caspian Tern (Sterna Caspia) at Yarmouth. <*Zoologist*, vii, 1849, p. 2529.

1849. **Smith,** *Rev.* **James.** Occurrence of the Little Gull (Larus minutus) at Yarmouth. <*Zoologist*, vii, 1849, p. 2529.

1849. **Thompson, W.** Note sur l'apparition en Europe du Larus Bonapartei, Richardson et Swainson, par M. W. Thompson (Ann. Nat. Hist. Mars, 1848); traduite par M. Edm. Fairmaire. <*Rev. et Mag. Zool.*, i, 1849, pp. 264–266.

1849. **Wolley, J.** Occurrence of Buffon's Skua (Lestris Buffonii) in Huntingdonshire. <*Zoologist*, vii, 1849, p. 2392.

1850. **Baikie, W. B.** The Masked Gull (Larus capistratus) in the Mediterranean. <*Zoologist*, viii, 1850, pp. 2653, 2654.

1850. **Baikie, W. B.** Masked Gull (Larus capistratus) in the Mediterranean. <*Zoologist*, viii, 1850, pp. 2880, 2881.

1850. **Bury, C.** The Masked Gull (Larus capistratus) in the Mediterranean. <*Zoologist*, viii, 1850, pp. 2776, 2777.

1850. **Curtler, M.** Occurrence of the Arctic Gull (Lestris parasiticus) near Worcester. <*Zoologist*, viii, 1850, p. 2706.

1850. **Curtler, M.** Occurrence of the Black Tern (Sterna nigra) near Worcester. <*Zoologist*, viii, 1850, p. 2706.

1850. **Foster, T. W.** Occurrence of the Black Tern (Sterna nigra), Lesser Tern (S. minuta) and Common Tern (S. hirundo) at March. <*Zoologist*, viii, 1850, p. 2854.

1850. **Gurney, J. H.** Occurrence of the Glaucous Gull (Larus glaucus) in Norfolk. <*Zoologist*, viii, 1850, pp. 2777, 2778.

1850. **Gurney, J. H.** Occurrence of the Gull-billed Tern (Sterna anglica) at Yarmouth. <*Zoologist*, viii, 1850, pp. 2853, 2854.

1850. **Gurney, J. H.** Occurrence of the Caspian Tern (Sterna caspia) near Yarmouth. <*Zoologist*, viii, 1850, p. 2915.

1850. **[Jardine, W.]** Remarks on the Sterna inca, Lesson. <*Jard. Contrib. Orn.*, 1850, pp. 32–34, woodc. col'd.

Named *Inca mysticalis*, g. sp. n.

1850. **Morris, B. R.** Occurrence of the Little Gull (Larus minutus) at Bridlington Quay. <*Zoologist*, viii, 1850, p. 2653.

1850. **Morris, F. O.** Occurrence of the Little Gull [Larus minutus] near Bridlington Quay. <*Zoologist*, viii, 1850, p. 2653.

1850. **Newton, A.** Occurrence of the Masked Gull (Larus capistratus) on the Dart. <*Zoologist*, viii, 1850, p. 2825.

1850. **Plant, J.** Occurrence of the Common Skua (Lestris parasiticus) at Fleetwood. <*Zoologist*, viii, 1850, p. 2925.

1850. **Potter, C.** Occurrence of the Black Tern (Sterna fissipes) at Balmer. <*Zoologist*, viii, 1850, p. 2803.

1850. **Rodd, E. H.** Occurrence of the Black Tern (Sterna fissipes) in Adult Summer Plumage in Mount's Bay. <*Zoologist*, viii, 1850, p. 2803.

1850. Rudd, T. S. Occurrence of the Little Gull (Larus minutus) at Redcar, and some Particulars of its Plumage. < *Zoologist*, viii, 1850, p. 2706.

1850. Smith, *Rev.* James. Occurrence of the Gull-billed Tern (Sterna Anglica) in Norfolk. < *Zoologist*, viii, 1850, p. 2653.

1851. Briggs, J. J. The Little Gull (Larus minutus) in Derbyshire. < *Zoologist*, ix, 1851, p. 3118.

1851. Duck, J. N. Occurrence of the Little Gull (Larus minutus) at Weston-super-Mare. < *Zoologist*, ix, 1851, p. 3056.

1851. Ellman, J. B. Occurrence of the Little Gull (Larus minutus) at Lewes. < *Zoologist*, ix, 1851, p. 3036.

1851. Gurney, J. H. Note on the Gull-billed Tern [Sterna anglica]. < *Zoologist*, ix, 1851, p. 3235.

1851. Gurney, J. H. Occurrence of the Caspian Tern [Sterna caspia] at Yarmouth. < *Zoologist*, ix, 1851, p. 3235.

1851. Leith, G. H. Occurrence of Bonaparte's Gull (Larus Bonaparti) in Scotland. < *Zoologist*, ix, 1851, p. 3117.

1851. Moggridge, M. Larus [Rissa] tridactylus [in Britain]. < *Ann. Mag. Nat. Hist.*, 2d ser., vii, 1851, pp. 235, 236.

1851. Potter, C. Occurrence of the Little Gull [Larus minutus] at Lewes. < *Zoologist*, ix, 1851, p. 3036.

1851. Powys, T. W. Occurrence of the Caspian Tern (Sterna Caspia) near Lausanne. < *Zoologist*, ix, 1851, pp. 3209, 3210.

1851. Rodd, E. H. Occurrence of the Whiskered Tern [Sterna leucoparia] at Scilly. < *Zoologist*, ix, 1851, p. 3280.

1851. Rodd, E. H. Occurrence of the Pomarine Skua [Stercorarius pomatorhinus] in Adult Plumage near Penzance. < *Zoologist*, ix, 1851, p. 3280.

1851. Thorncroft, T. Occurrence of Richardson's Skua (Lestris Richardsonii) at Brighton. < *Zoologist*, ix, 1851, p. 3054.

1851. Wood, C. Occurrence of the Kittiwake Gull (Larus [Rissa] tridactylus) on Wandsworth Common. < *Zoologist*, ix, 1851, p. 3117.

1852. Ellman, J. B. Occurrence of Ross's Rosy Gull (Larus Rossii [Rhodostethia rosea]) at Pevensey, Sussex. < *Zoologist*, x, 1852, p. 3388.

1852. Ellman, J. B. Occurrence of the Pomerine Skua (Lestris pomerinus [sic—lege pomatorhinus]) at Hastings. < *Zoologist*, x, 1852, pp. 3331, 3332.

1852. Irby, L. H. Food of the Black-headed Gull, (Larus ridibundus). < *Zoologist*, x, 1852, p. 3711.

1852. [Jardine, W.] Habits of Larus canus. < *Jard. Contrib. Orn.*, 1852, p. 40.

1852. Lawrence, G. N. On the occurrence of the Caspian Tern (Sylochelidon Caspius) in North America. < *Ann. Lyc. Nat. Hist. New York*, v, 1852, pp. 37, 38. (Read May 6, 1850.)

1852. Rodd, E. H. Occurrence of the Lesser Tern [Sterna minuta] near Mount's Bay. < *Zoologist*, x, 1852, p. 3453.

1852. Rodd, E. H. Occurrence of the Gull-billed Tern (Sterna Anglica) at Scilly. < *Zoologist*, x, 1852, p. 3536.

1852. Rodd, E. H. Occurrence of the Iceland Gull (Larus Islandicus) at Scilly. < *Zoologist*, x, 1852, p. 3536.

1852. Schach, F. [Das Vorkommen von Lestris pomarina bei Krimnitzschau.] < *Naumannia*, ii, Heft ii, 1852, p. 123.

1852. Smith, J. A. Notice of the Occurrence of the Black Tern, Sterna nigra, Linn., near Coldstream. < *Ann. Mag. Nat. Hist.*, 2d ser., ix, 1852, pp. 73, 74.

1852. THOMPSON, W. Larus glaucus [in Britain]. < *Ann. Mag. Nat. Hist.*, 2d ser., ix, 1852, p. 244.

1853. BORRER, W., JR. Occurrence of the Masked Gull (Larus capistratus) in Sussex. < *Zoologist*, xi, 1853, p. 3912.

1853. BROWN, E. Occurrence of the Sooty Tern (Sterna fuliginosa) in England. < *Zoologist*, xi, 1853, pp. 3755, 3756.

1853. BRUCH, [P.] Monographische Uebersicht der Gattung Larus Lin. < *J. f. O.*, i, 1853, pp. 96–108, pll. ii, iii.

Sketch of the subject; characters and habitat of 62 spp. *Larinæ*, under 12 genn., and of 5 spp. *Lestridinæ* under 3 genn. The large folded plates, uncolored, illustrate the heads of 24 spp. *Larinæ* of natural size. The article has been spoken of with some reserve, and is generally considered to have been superseded by the author's subsequent paper on the same subject, *op. cit.*, 1855, p. 273, *seq.* (See what is said at 1854, BONAPARTE, C. L.)

1853. DUNN, R. Occurrence of the Little Gull (Larus minutus) in Shetland. < *Zoologist*, xi, 1853, pp. 3911, 3912.

1853. FREDERICK, G. Occurrence of the White-winged Black Tern (Sterna leucoptera) near Yarmouth. < *Zoologist*, xi, 1853, p. 3911.

1853. FOOTTIT, W. F. Occurrence of the Caspian Tern (Sterna Caspia) in Lincolnshire. < *Zoologist*, xi, 1853, p. 3946.

1853. GURNEY, J. H. Note on a White Variety of the Common Tern [Sterna hirundo]. < *Zoologist*, xi, 1853, p. 4124.

1853. HOMEYER, E. F. v. Larus Heinei. Heine's Möve. < *Naumannia*, iii, 1853, pp. 129, 130.

1853. LAWRENCE, G. N. Descriptions of New Species of Birds of the Genera Ortyx Stephens, Sterna Linn., and Icteria Vieillot. < *Ann. Lyc. Nat. Hist. N. Y.*, vi, 1853, pp. 1–4.

Sterna pikei, p. 3.

1853. LENK, *Dr.* —. Eine briefliche Mittheilung des Hrn. Dr. Lenk. < *Verh. zool.-bot. Ver. Wien*, iii, am 7 Dec., 1853, pp. 195–197.

Ueber *Larus capistratus* in Böhmen.

1853. LOWENHJELM, C. G. Myoxus avellanarius; Sterna arctica. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1852, 1853, pp. 234, 235.

Sterna arctica häckar i mangd vid en insjö, 2 mil norr om Gellivare.

1853. NEWTON, A. Correction of a previous Error [Zool., p. 3825] respecting the Masked Gull, (Larus capistratus). < *Zoologist*, xi, 1853, p. 4074.

1854. BONAPARTE, C. L. Notes sur les Larides < *Naumannia*, iv, 1854, pp. 209–219.

La famille entière des *Larides* (c'est à dire les subfam. *Lestridinæ* et *Larinæ*) ayant été passée en revue synoptique, l'auteur s'occupe d'une critique de M. Bruch (*J. f. O.*, 1853, pp. 96–108). *Lestridinæ*, 4 genn., 4. spp. (avec (5) *Cimoliornis diomedeus* Owen, sp. foss.); *Larinæ*, 18 genn., 73 spp. À cause des rapports qui semblent d'avoir existés entre l'auteur et M. Bruch, il devient difficile d'indiquer avec précision les noms qui sont véritablement nouveaux; surtout lorsqu'on reconnait le fait que ces auteurs tous deux ont presque toujours manqué de donner les renseignements nécessaires. Les genres qui suivant semblent être nouvellement proposés: *Procellarus* sive *Epitelarus*, p. 213; *Creagrus*, *Atricilla*, p. 214; *Melagavia*, p. 217; *Cirrocephalus*, p. 218.—*Atricilla catesbaei*, *minor*, *macroptera*, p. 212; *Procellarus neglectus*, p. 213; *Larus verreauxi*, p. 215; *Gavia kamtschatchensis*, p. 215; *G. bruchii*, p. 216; *Gelastes corallinus*, p. 216; *Rissa kotzebui*, p. 217, spp. nn.

It may be remarked, in fine, of this article, that it is worse than worthless, being pernicious. It is ostensibly a review of Bruch's paper of 1853; this being itself a very incompetent performance, confusion is here worse confounded by Bonaparte's criticisms and "rectifications." It seems to have had, among other undesirable results, the effect of setting Bruch at the business anew, as appears by the latter's paper of 1855. The two authors together made as complete a muddle as can be found in ornithology; woe to the confiding student who trusts either of them—*crede experto!* Bruch and Bonaparte are Scylla and Charybdis of Gull literature.

1854. BORRER, W., JR. Occurrence of Larus [Xema] Sabinei, Leach, in Sussex. < *Zoologist*, xii, 1854, p. 4408.

1854. BREHM, [C.] L. Verfärbung und Federwechsel der europäischen Seeschwalben. <*J. f. O.*, ii, 1854, pp. 317–321.

1854. BRIGGS, J. J. Occurrence of the Pomarine Skua (Catarractes [Stercorarius] pomarinus) in Derbyshire. <*Zoologist*, xii, 1854, p. 4513.

1854. GLOGER, C. W. L. Audubon als der erste Bekenner der Ansicht von „Umfärbung ohne Mauser." <*J. f. O.*, ii, 1854, pp. 328–334.

The author's reading of Audubon furnished him with frequent occasion for writing: in this instance, he translates and comments upon what that writer has to say respecting the changes of plumage in *Laridæ*.

1854. GLOGER, C. W. L. Das Abändern der weissen Zeichnung an den Schwingen der Möven [Laridæ]. <*J. f. O.*, ii, 1854, p. 383.

Translation from Audubon on this subject, in the case of *L. argentatus*.

1854. GOLOWATSCHOW, A. Larus columbinus. (Mouette Colombine.) Espèce nouvelle, habitant les parages de la mer Caspienne. <*Bull. Soc. Imp. Nat. Moscou*, xxvii, pt. i, 1854, pp. 435–441, pl. iv.

1854. HARDY, J. Description d'une espèce inédite de Lestris [spinicaudus] de l'Océan meridional. <*Rev. et Mag. de Zool.*, vi, 1854, pp. 657, 658.

1854. KING, E. L. Occurrence of Richardson's Skua (Lestris Richardsonii) at Lynn. <*Zoologist*, xii, 1854, pp. 4512, 4513.

1854. LAWRENCE, G. N. Description of a New Species of Bird of the Genus Larus [californicus] Linn. <*Ann. Lyc. Nat. Hist. N. Y.*, vi, 1854, pp. 79, 80.

1855. BONAPARTE, C. L. Notes sur les Larides. <*Rev. Mag. Zool.*, vii, 1855, pp. 12–21.

Not seen.

1855. BRUCH, [P.] Revision der Gattung Larus Lin. <*J. f. O.*, iii, 1855, pp. 273–293, pll. iv, v.

Cf. *op. cit.*, 1853, pp. 96–108. 65 spp. The present article retraces the ground of the first one; the discrepancies between the two are numerous and irreconcilable, leaving both open to suspicion. In fact, having ourselves suffered for our indiscretion in venturing upon these papers of Bruch's, as well as those of Bonaparte's on the same subject, it is a duty we owe to posterity, and one we willingly here discharge, to warn all persons off these premises.

1855. DEGLAND, C. D. [Fang einer für Frankreich, wenn nicht überhaupt für Europa, neuen Seeschwalbe (Sterna fuliginosa).] <*Naumannia*, v, 1855, p. 412.

„*S. fuliginosa* wurde bekanntlich vor mehren Jahren an der Elbe, gleichfalls lebendig gefangen."—Baldamus.

1855. GLOGER, C. W. L. Auch Möven werfen lebende Schalthiere aus der Höhe auf kahle Felsen [u. s. w.]. <*J. f. O.*, iii, 1855, p. 447.

Quotations from Audubon on the habits of *Larus argentatus*.

1855. GLOGER, C. W. L. Auch die grösseren Möven brüten zum Theil schon im noch unvollendeten Kleide. <*J. f. O.*, iii, 1855, pp. 521, 522.

Quotation from Audubon, again, respecting *Larus argentatus*. It would have simplified matters, if the writer had once copied from Audubon all he desired on the subject, and had done with it.

1855. HUSSEY, A. Occurrence of Richardson's Skua (Lestris Richardsoni) in Sussex. <*Zoologist*, xiii, 1855, p. 4560.

1855. MURRAY, A. [Extract of letter from W. Jardine, on capture of Pagophila eburnea in Caithness-shire.] <*Edinb. New Philos. Journ.*, new ser., i, 1855, p. 365.

1855. POWYS, T. L. Occurrence of Buonaparte's Gull (Larus Buonapartii) on the Irish Coast. <*Zoologist*, xiii, 1855, p. 4762.

1855. POWYS, T. L. Occurrence of Buonaparte's Gull (Larus Buonapartii) on the Irish Coast. <*Zoologist*, xiii, 1855, pp. 4809, 4810.

1855. ROBERTS, A. Occurrence of the Lesser White-winged Gull (Larus islandicus) near Scarborough. <*Zoologist*, xiii, 1855, p. 4560.

1855. WATTERS, [J. J.] On the Habits and on the Varieties of some of the [Irish] Laridæ. <*Nat. Hist. Rev.*, ii, 1855, pp. 100–103.

1856. [BILLINGS, E.] On a Sea-Gull [Larus argentatus] shot at Ottawa. < *Canad. Nat. and Geol.*, i, 1856, pp. 159, 160.

1856. DESSAUVILLE, P. A. Notice of the Arctic Skua (Lestris Parasitica, Tem.), shot in Skye in the Summer of 1855. < *Edinb. New Philos. Journ.*, iii, 1856, pp. 350, 351.

1856. D'URBAN, W. S. M. Occurrence of the Little Gull [Larus minutus] and Common Skua on the Exe. < *Zoologist*, xiv, 1856, p. 5065.

1856. FARRAN, [C.] On the Genus Skua. (Lestridæ.) < *Nat. Hist. Rev.*, (*Pr. Soc.*), iii, 1856, pp. 48–51.

Characters and habits of several species.

1857. BRUCH, [P.] Nachtrag zur Revision der Gattung Larus. < *J. f. O.*, v, 1857, pp. 23–25.

Cf. *J. f. O.*, 1853, pp. 96–108; 1855, pp. 273–293. Treats further of 3 or 4 species.

1857. BRUCH, [P.] Zweiter Nachtrag zur Revision der Gattung Larus. < *J. f. O.*, v, 1857, pp. 113, 114, pl. i, f. 1–3.

Cf. *J. f. O.*, 1853, pp. 96–108; 1855, pp. 273–293; 1857, pp. 23–25. *L. poiocephalus*, *L. lambruschini*, *L. fuscescens*.

1857. RODD, E. H. Note on the British Skuas, genus Lestris. < *Zoologist*, xv, 1857, p. 5596.

1857. SAVILLE, S. P. Occurrence of rare Sea Birds [Laridæ, 4 spp.] near Cambridge. < *Zoologist*, xv, 1857, p. 5834.

1858. BLASIUS, J. H. Ein Wort über die Möven der Zoographia Rosso-asiatica von Pallas. < *Naumannia*, viii, 1858, pp. 316–320.

Demnach würden sich die von Pallas in der Zoographia aufgefuhrten Namen und Beschreibungen auf folgende Arten beziehen: 1. *Larus marinus* L. 2. *L. argentatus* Brünn. = *L. cachinnans* Pall. 3. *L. glaucus* Brünn. *L. canus* L. = *L. niveus* Pall. *L. tridactylus* L. = *LL. rissa*, *gavia*, *canus*, *torquatus* Pall. 6. *L. ichthyaëtus* Pall. 7. *L. ridibundus* L. = *LL. atricilla*, *cinerarius*, *nævius* Pall. 8. *L. minutus* Pall.

1858. LAWRENCE, G. N. Descriptions of two New Species of Gulls in the Museum of the Smithsonian Institute at Washington. < *Ann. Lyc. Nat. Hist. New York*, vi, 1858, pp. 264–266. (Read June 29, 1857.)

Larus suckleyi, p. 264; *Rissa septentrionalis*, p. 266. [Both = *L. brachyrhynchus* Rich.]

1858. MATHEWS, M. A. Occurrence of the Little Gull [Larus minutus] near Barnstable. < *Zoologist*, xvi, 1858, pp. 6245, 6246.

1858. RODD, E. H. Occurrence of the Pomarine Skua (Lestris pomarina [Stercorarius pomatorhinus]) at the Land's End. < *Zoologist*, xvi, 1858, p. 6267.

1858. STEVENSON, H. Appearance of Skuas off the Coast of Yarmouth. < *Zoologist*, xvi, 1858, pp. 6309, 6310.

1859. ANON. Pomarine Skua (Lestris pomarina [Stercorarius pomatorhinus]) near Brighton. < *Zoologist*, xvii, 1859, p. 6331.

1859. ANON. Occurrence of Sabine's Gull (Larus [Xema] Sabini) at Brighton. < *Zoologist*, xvii, 1859, p. 6331.

1859. BARTLETT, A. D. Remarks on the Habits of a Herring Gull (Larus argentatus). < *P. Z. S.*, xxvii, 1859, pp. 467, 468.

Voluntary semidomestication.

1859. DUNN, R. Occurrence of the Adult Glaucous Gull [Larus glaucus] in Orkney. < *Zoologist*, xvii, 1859, p. 6448.

1859. DUTTON, J. Occurrence of the Pomarine Skua (Lestris pomarina [Stercorarius pomatorhinus]) at Birting Gap. < *Zoologist*, xvii, 1859, pp. 6378, 6379.

1859. HOMEYER, E. [F.] v. Ueber Larus Heinei. < *J. f. O.*, vii, 1859, pp. 155, 156.

Especially on its relationships with *L. canus*.

1859. ROSS, F. W. L. Notice of a Black-headed Gull [Larus ichthyaëtus] found recently in Devonshire. < *Ann. Mag. Nat. Hist.*, 3d ser., iv, 1859, p. 467.

1860. ALBRECHT, —. Verhalten einer aufgezogenen Möve [Larus argentatus]; längere Aufbewahrung frischer Eier. < *J. f. O.*, viii, 1860, pp. 367–369.

Translated from Bartlett, *Ann. Mag. N. H.*, No. 30, June, 1860.

1860. BARTLETT, A. D. Remarks on the Habits of a Herring Gull (Larus argentatus). < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, pp. 498, 499.

From *P. Z. S.*, Nov. 22, 1859.

1860. DUNN, J. Occurrence of the Glaucous Gull [Larus glaucus] in Orkney. < *Zoologist*, xviii, 1860, p. 6813.

1860. DUTTON, J. Occurrence of Richardson's Skua (Lestris Richardsonii) at Eastbourne. < *Zoologist*, xviii, 1860, p. 7106.

1860. GOULD, J. Description of a new Species of Gull (Gavia roseiventris) from the Falkland Islands. < *Ann. Mag. Nat. Hist.*, 3d ser., v, 1860, p. 232.

From *P. Z. S.*, Feb. 8, 1859, p. 97; from a paper of wider scope.

1860. GURNEY, J. H. Note on the Carnivorous propensities of the Blackheaded Gull (Larus ridibundus). < *Zoologist*, xviii, 1860, pp. 7106, 7107.

1860. JÄCKEL, J. Sterna leucoptera Meissn. und Schinz in Bayern brütend. < *J. f. O.*, viii, 1860, pp. 300, 301.

1860. LEADBEATER, —. [Exhibition of Lestris cepphus from Ireland.] < *P. Z. S.*, xxviii, 1860, p. 322.

1860. MORE, A. G. The Arctic Tern (Sterna arctica) nesting on Fresh Water. < *Zoologist*, xviii, 1860, pp. 6891, 6892.

1860. NICHOLLS, H., JR. Occurrence of Richardson's Skua [Stercorarius parasiticus] at Kingsbridge. < *Zoologist*, xviii, 1860, p. 7106.

1860. QUISTORP, [G.] Larus leucopterus in Pommern beobachtet. < *J. f. O.*, viii, 1860, p. 369.

1860. ROSS, F. W. L. Occurrence of Larus icthyaëtus [sic], a new British Gull, in Devonshire. < *Zoologist*, xviii, 1860, pp. 6860, 6861.

1860. SAVILLE, S. P. A Kittiwake Gull (Larus [Rissa] tridactylus) driven Inland [Cambridge] by the late Terrific Gales. < *Zoologist*, xviii, 1860, p. 6982.

1860. SAVILLE, S. P. Common Tern (Sterna hirundo) shot during the late gale [in Northamptonshire]. < *Zoologist*, xviii, 1860, p. 7106.

1861. TREMBLY, J. B. Ornithological Inquiries. < *Field Notes*, i, No. 17, Apr. 27, 1861, p. 129.

Respecting occurrence of certain *Laridæ* in Ohio.

1861. W[HEATON], J. M. The Gulls. < *Field Notes*, i, No. 20, May 18, 1861, p. 153.

Alleged *Larus* "*occidentalis*" in Ohio is not that species.

1862. BLAKE-KNOX, H. Occurrence of Sabine's Gull [Xema sabinii] in Dublin Bay. < *Zoologist*, xx, 1862, pp. 8093, 8094.

1862. BOND, T. The Little Gull [Larus minutus]. < *Zoologist*, xx, 1862, pp. 7939, 7940.

1862. COUES, E. Revision of the Gulls [Larinæ] of North America; based upon specimens in the Museum of the Smithsonian Institution. < *Proc. Acad. Nat. Sci. Phila.*, xiv, 1862, pp. 291–312.

Stated to be "an abstract of a more extended Monograph on the Gulls on North America, prepared for publication in a Government Report." The "Monograph" here in mention appeared in 1874, as a part of the "Birds of the Northwest" (pp. 589–717), *q. v.*

The present paper divides the *Laridæ* into 4 subfamilies, *Lestridinæ*, *Larinæ*, *Sterninæ* and *Rhynchopinæ*, and gives an outline of the North American genera and species of the second of these, which is divided into the following 8 genera: *Larus*, *Blasipus*, *Rissa*, *Pagophila*; and *Chroicocephalus*, *Rhodostethia*, *Xema*, *Creagrus*. The species recognized are as follow:—

1, *Larus hutchinsii* (later determined to be the young of *L. glaucus*). 2, *L. glaucus*. 3, *L. leucopterus*. 4, *L. glaucescens*. 5, *L. chalcopterus* (later referred to *glaucescens*). 6, *L. marinus*. 7, *L. occidentalis*. 8, *L. smithsonianus*, sp. n., p. 296, being the *L. argentatus* of American

1862. COUES, E.—Continued.

writers; later reduced to a race of the latter. 9, *Larus californicus.* 10, *L. delawarensis.* 11, *L. brachyrhynchus* Rich., being the N. Am. representative of *L. canus;* to it are referred *L. suckleyi* and *Rissa septentrionalis* of Lawrence. 12, *Blasipus heermanni.* 13, *Rissa tridactyla.* 14, *R. kotzebui*, the N. Pacific analogue of *R. tridactyla.* 15, *R. brachyrhyncha* Gould, or *brevirostris* Brandt. 16, *Pagophila eburnea.* 17, *P. brachytarsus* (since admitted to be same as 16). 18, *Chroicocephalus atricilla.* 19, *C. cucullatus* (afterward referred to 20). 20, *C. franklini.* 21, *C. philadelphia.* 22, *C. minutus* (given as questionably North American). 23, *Rhodostethia rosea.* 24, *Xema sabinii.* 25, *Creagrus furcatus.*

Taking from these 25 species the following 5, viz: *L. hutchinsii, L. chalcopterus, Rissa kotzebui, Pagophila brachytarsus, Chroicocephalus cucullatus*, as not valid, and *C. minutus* as extralimital, we have a residuum of 19 good species, most of which are carefully described in this paper, with brief synonymy, and extended criticism. The paper is handicapped by the author's reliance to greater extent than the facts warrant upon Bonaparte's and Bruch's misguiding and perplexing lead. It is otherwise a very fair exhibit of the knowledge we possessed at the time the paper was written.

Cf. *Ibis*, 1863, pp. 108, 109.

1862. COUES, E. A Review of the Terns [Sterninæ] of North America. < *Proc. Acad. Nat. Sci. Phila.*, xiv, 1862, pp. 535–559.

The genera and species critically reviewed in this paper are the following:—

1, *Gelochelidon anglica.* 2, *Thalasseus caspius;* the N. Am. bird tentatively named *Th. imperator*, sp. n., p. 538. 3, *T. regius.* 4, *T. elegans.* 5, *T. acuflavidus* (afterward reunited with *T. cantiaca*). 6, *Sterna trudeaui.* 7, *S.* "*havelli*", considered as the winter plumage of *S. forsteri.* 8, *S. forsteri.* 9, *S. hirundo.* 10, *S. macroura.* 11, *S. pikei* Lawr. 12, *S. paradisea.* 13, *S. antillarum.* 14, *Hydrochelidon fissipes.* 15, *Haliplana fuliginosa.* 16, *Anous stolidus*, with *A. frater*, sp. n. prob., p. 558. Neither of the two new names has proven to represent much value. The identification of *S. havelli*, here first made, has been confirmed. *S. pikei* is not a good species. *T. acuflavidus* is not distinct from *T. cantiacus.* The other species hold, though some of them require other names, and several species have since been added to the North American Fauna. See same author at 1874, *Birds of the Northwest.*

Cf. *Ibis*, 1863, pp. 471, 472.

1862. GATCOMBE, J. Occurrence of the Little Gull [Larus minutus] at Plymouth. < *Zoologist*, xx, 1862, p. 7940.

1862. GATCOMBE, J. Occurrence of the Iceland Gull [Larus leucopterus] at Plymouth. < *Zoologist*, xx, 1862, p. 8036.

1862. HAMMOND, W. Occurrence of the Little Gull [Larus minutus] in Kent. < *Zoologist*, xx, 1862, p. 8003.

1862. PHILIPPI, R. A., *and* LANDBECK, L. Descripcion de una nueva golondrina de mar [Sterna atrofasciata]. < *Anal. Univ. Chile*, xxi, Nov., 1862, p. 440.

1862. PREYER, W., *and* ZIRKEL, F. Reise nach Island im Sommer 1860. Mit wissenschaftlichen Anhangen. Leipsig. Brockhaus. 1862. 8vo.

Anhang C. Systematische Uebersicht der Rückgratthiere Islands. Von Wm. Preyer. pp. 377–434 Gives lists of the species, with notes on the eggs of many. *Lestris thuliaca*, Preyer, p. 418, sp. n.

1862. RODD, E. H. Occurrence of the Common Skua [Lestris catarractes] near the Land's End. < *Zoologist*, xx, 1862, p. 8237.

1862. ROGERS, H. Occurrence of the Pomarine Skua [Stercorarius pomatorhinus] in the Isle of Wight. < *Zoologist*, xx, 1862, p. 8288.

1862. SAXBY, H. L. Variety of the Common Gull [Larus canus]. < *Zoologist*, xx, 1862, p. 7883.

1862. WILSON, W. Occurrence of the Little Gull [Larus minutus] and Little Auk [Alca alle] near Lynn. < *Zoologist*, xx, 1862, p. 7939.

1863. ANON. Die Mövenkolonie auf Rottum. < *Aus der Natur*, xxiii, oder n. F., xi, Jan. März, 1863, pp. ———.

Not seen.

1863. BLAKE-KNOX, H. Skuas [Stercorarius skua] on the Coast of Dublin. < *Zoologist*, xxi, 1863, pp. 8332, 8333.

1863. CLERMONT, *Lord.* The Arctic Skua [Stercorarius parasiticus] feeding on Worms near Newry. < *Zoologist*, xxi, 1863, p. 8692.

1863. COUES, E. On the Lestris richardsoni of Swainson; with a Critical Review of the Subfamily Lestridinæ. < *Proc. Acad. Nat. Sci. Phila.*, xv, 1863, pp. 121–138.

From his discussion of the claims of *Lestris richardsoni* to be considered a good species, the author passes to review the entire subfamily, recognizing the following genera and species:—

I. BUPHAGUS, Moehr. 1, *B. skua* (Brünn.). 2, *B. antarcticus* (Less.).

II. STERCORARIUS, Briss. 3, *S. pomarinus* (Temm.) (lege *pomatorhinus*). 4, *S. parasiticus* Brünn. 5, *S. richardsoni* (Sw.). *S. hardyi* (Bp.). 7, *S. spinicauda* (Bp.). 8, *S. buffoni* (Boie).

The nomenclature of this paper is eccentric, the author having apparently imbibed some untenable views of G. R. Gray's on this subject. *S. richardsoni* has not proved valid. The four unquestionable Jägers of the Northern Hemisphere are carefully distinguished and adequately described, with copious synonymy. See same author at 1874, *Birds of the Northwest.*

Cf. *Ibis*, 1864, pp. 127, 128.

1863. COUES, E. [On the specific validity of Larus smithsonianus.] < *Ibis*, v, 1863, p. 367.

1863. DUNN, J. H. Pomarine Skuas [Stercorarius pomatorhinus] in the Orkneys. < *Zoologist*, xxi, 1863, p. 8332.

1863. DUTTON, J. The Pomarine Skua [Stercorarius pomatorhinus] off Beachy Head. < *Zoologist*, xxi, 1863, p. 8333.

1863. MATHEWS, M. A. Sabine's Gull (Larus [Xema] Sabini) in Devonshire. < *Zoologist*, xxi, 1863, p. 8448.

1863. MATHEWS, M. A. Buffon's Skua (Lestris parasiticus) near Wellington. < *Zoologist*, xxi, 1863, p. 8448.

1863. MATHEWS, M. A. The Little Gull [Larus minutus] and Sabine's Gull [Xema sabinii] at Weston-super-Mare. < *Zoologist*, xxi, 1863, p. 8692.

1863. NEWMAN, E. Pomarine Skuas [Stercorarius pomatorhinus] on the English Coast. < *Zoologist*, xxi, 1863, p. 8333.

1863. ROGERS, H. The Pomarine Skua [Stercorarius pomatorhinus] in the Isle of Wight. < *Zoologist*, xxi, 1863, p. 8332.

1863. SAXBY, H. L. Pomarine Skua (Lestris pomarinus) in Shetland. < *Zoologist*, xxi, 1863, p. 8494.

1863. SCHLEGEL, H. Lari < *Mus. Hist. Nat. Pays-Bas*, 4e livr., août 1863, pp. 1–50.

This group consists of the genera *Larus* and *Stercorarius* of the author, the Terns and Skimmers not being here treated.

L. ichthyaëtus minor, subsp. n., p. 34.

1863. STEVENSON, H. Sandwich Tern (Sterna Boysii [cantiaca]) in Norfolk. < *Zoologist*, xxi, 1863, p. 8332.

1863. YOUNG, E. Richardson's Skua [Stercorarius richardsoni] in Kent. < *Zoologist*, xxi, 1863, p. 8726.

1864. BOULTON, W. W. Sandwich Tern [Sterna cantiaca] Shot at Flamborough. < *Zoologist*, xxii, 1864, p. 9291.

1864. BOULTON, W. W. Little Gulls [Larus minutus] off Bridlington Quay. < *Zoologist*, xxii, 1864, p. 9365.

1864. BOULTON, W. W. Black Tern [Hydrochelidon nigra] at Filey. < *Zoologist*, xxii, 1864, p. 9365.

1864. BOULTON, W. W. Common Skua [Stercorarius skua] at Flamborough Head. < *Zoologist*, xxii, 1864, p. 9365.

1864. BOULTON, W. W. Richardson's Skuas [Stercorarius richardsoni] off Bridlington Quay. < *Zoologist*, xxii, 1864, p. 9365.

1864. BOULTON, W. W. Buffon's Skua [Stercorarius buffoni] at Flamborough Head. < *Zoologist*, xxii, 1864, p. 9365.

1864. **Coues, E.** Notes on certain Central-American Laridæ collected by Mr. Osbert Salvin and Mr. F. Godman. < *Ibis*, vi, 1864, pp. 387–393.
15 or 16 spp. Critical notes. First mention of *Haliplana discolor*, n. s., subsequently described. Field notes by O. S.

1864. **Fischer, J. C. H.** Larus rossii [Rhodostethia rosea] paa Færøerne. < *Krøyer's (Schiødte's) Naturhist. Tidssk.*, iii, 1864, pp. 8–10.
Cf. *Ibis*, 1865, pp. 103, 238.

1864. **Gould, J.** Description of a New Species of Gull [Chroicocephalus tibetanus] from Tibet. < *P. Z. S.*, xxxii, 1864, pp. 54, 55.

1864. **Gould, J.** Description of a New Species of Gull from Tibet [Chroicocephalus tibetanus]. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, pp. 279, 280.
From *P. Z. S.*, Feb. 9, 1864, pp. 54, 55.

1864. **Schlegel, H.** Sternae < *Mus. Hist. Nat. Pays-Bas*, 5ᵉ livr., 1864, pp. 1–44.
The *Sternæ* of this author include the three genera *Sterna* (37 spp.), *Rhynchops* (3 spp.), and *Dromas* (1 sp.)!, represented by 371 specimens in the Leyden Museum. *Sterna bernsteini*, p. 9. The monograph is dated Sept., 1863, but livr. 5 did not appear until 1864.

1865. **Alston, E. R.** [On J. Sabine's specimen of Larus rossi (Rhodostethia rosea). Cf. Ibis, 1865, p. 238.] < *Ibis*, 2d ser., i, 1865, pp. 547, 548.

1865. **Alston, E. R.** Kittiwake [Rissa tridactyla] in Ayrshire in Winter. < *Zoologist*, xxiii, 1865, p. 9470.

1865. **Blake-Knox, H.** Iceland Gull [Larus leucopterus] in Dublin Bay. < *Zoologist*, xxiii, 1865, p. 9470.

1865. **Gatcombe, J.** Whiskered Tern [Hydrochelidon leucoparia] on the Coast of Devon. < *Zoologist*, xxiii, 1865, p. 9629.

1865. **Harting, J. E.** Pure White Gull [species not named]. < *Zoologist*, xxiii, 1865, p. 9784.

1865. **Mathew, M. A.** Sabine's Gull [Xema sabinii] and the Ivory Gull [Pagophila eburnea] at Weston-super-Mare. < *Zoologist*, xxiii, 1865, p. 9470.

1865. **Mathew, M. A.** Ivory Gull ["Pagophila eburnea"] at Weston-super-Mare. < *Zoologist*, xxiii, 1865, p. 9566.
Cf. *Zool.*, p. 9734.

1865. **Mathew, G. F.** Carnivorous Propensity of the Great Blackbacked Gull [Larus marinus]. < *Zoologist*, xxiii, 1865, p. 9619.

1865. **Mathew, M. A.** The Ivory Gull [Pagophila eburnea]: Correction of an Error [Zool., p. 9566]. < *Zoologist*, xxiii, 1865, p. 9734.

1865. **[Newton, A.]** [On the known specimens (5 in number) of Rhodostethia rosea. Cf. Fn. Bor.-Am., ii, p. xii; Naturh. Tidssk., 3d ser., iii, 1864, p. 8; J. f. O., 1855, p. 278; Naum., 1858, p. 307; Zool., pp. 1694, 1785, 3388.] < *Ibis*, 2d ser., i, 1865, pp. 103, 104; also p. 238; see also p. 547.

1865. **Rodd, E. H.** Bonaparte's Gull [Larus bonapartii] in Falmouth Harbour. < *Zoologist*, xxiii, 1865, p. 9501.

1866. **Angus, W. C.** The Black Tern [Hydrochelidon nigra] near Aberdeen. < *Zoologist*, 2d ser., i, 1866, pp. 525, 526.

1866. **Armitage, G. D.** Little Gull [Larus minutus] at Bridlington Quay. < *Zoologist*, 2d ser., i, 1866, p. 526.

1866. **Blake-Knox, H.** A Natural History of the Brownhooded or Blackheaded Gull [Larus ridibundus], with an Account of all its Plumages and Transformations from the Nestling to the Adult Bird; also some Questions about the Masked Gull. < *Zoologist*, 2d ser., i, 1866, pp. 361–372.
The third of a series with major title "Letters on Ornithology."

1866–67. BLAKE-KNOX, H. A Natural History of the Kittiwake Gull [Rissa tridactyla], with an Account of all its Plumages and Transformations, from the Nestling to the Adult Bird. < *Zoologist*, 2d ser., i, 1866, pp. 518–522; ii, 1867, pp. 548–553.

The fourth of a series with major title "Letters on Ornithology."

1866. BLAKE-KNOX, H. Occurrence of Sabine's Gull [Xema sabinii] in Dublin Bay. < *Zoologist*, 2d ser., i, 1866, p. 526.

1866. BLASIUS, J. H. Kritische Bemerkungen über Lariden. < *J. f. O.*, xiii, 1865, (pub. 1866), pp. 369–384; xiv, 1866, pp. 73–88.

The first article treats of *Larinæ* (36 spp.) and *Lestridinæ* (4 spp.), the second of *Sterninæ* (40) and *Rhynchopinæ* (3). Tabular view of geographical distribution follows. *Sterna macrodactyla*, p. 75; *S. macroptera*, p. 76, spp. nn. Diagnostic synopsis of 12 spp. of *Sterna* proper. This is one of the important critiques on *Laridæ*, though not infallible.

1866. LANGMAN, A. Iagttagelse af et gjensidigt Forhold i mellem Svartbag-Maagen (Larus marinus) og Sælhunden. < *Tidssk. Pop. Fremst. af Naturf.*, 3e række, iii, 1866, pp. 173, 174.

Svenska Jägarförbundets Nya Tidskrift, 2. årgången, 1864.

1866. LAYARD, E. L. [On the swimming of Stercorarius parasiticus; cf. Ibis, 1865, p. 526; 1866, p. 127.] < *Ibis*, 2d ser., ii, 1866, p. 220.

1866. LEGGE, W. V. Gulls breaking Mussel-shells. < *Zoologist*, 2d ser., i, 1866, p. 190.

1866. MATHEW, M. A. Lesser Tern [Sterna minuta] and Black Tern [Hydrochelidon nigra] at Weston-super-Mare. < *Zoologist*, 2d ser., i, 1866, p. 272.

1866. RODD, E. H. Sabine's Gull [Xema sabinii] in Mount's Bay. < *Zoologist*, 2d ser., i, 1866, p. 501.

1866. SMITH, CECIL. Black Tern [Hydrochelidon nigra] in Somersetshire. < *Zoologist*, 2d ser., i, 1866, p. 272.

1866. SMITH, H. E. Nesting of the Little Tern [Sterna minuta]. < *Zoologist*, 2d ser., i, 1866, p. 100.

1866. WHITELY, H. [Stercorarius parasiticus, swimming.] < *Ibis*, 2d ser., ii, 1866, p. 127.

1866. WRIGHT, E. P. [Letter relating to the first discovered egg of Pagophila eburnea, brought home by Sir L. McClintock from Polynia Isl., lat. 77° 25′. Cf. Carte, Journ. Roy. Dublin Soc., i, 1856, pp. 57–60, pls. 1, 2.] < *Ibis*, 2d ser., ii, 1866, pp. 216–218.

1867. ALSTON, E. R. "The Wide-awake Tern" [Zool., s. s., p. 979]. < *Zoologist*, 2d ser., ii, 1867, p. 1018.

1867. BLAKE-KNOX, H. A Natural History of the Common Gull [Larus canus], being an Account of its Habits, Food, Nidification, Cry, Flight, &c. < *Zoologist*, 2d ser., ii, 1867, pp. 625–631.

The fifth of a series with major title "Letters on Ornithology."

1867. CLIFTON, *Lord*. Query respecting Gulls in Kent. < *Zoologist*, 2d ser., ii, 1867, p. 637.

1867. DUTTON, J. Kittiwake [Rissa tridactyla] at Eastbourne. < *Zoologist*, 2d ser., ii, 1867, p. 793.

1867. F[AY, *Miss*] M. D. The history of a Sea-swallow [Sterna hirundo]. < *Our Young Folks* [juvenile magazine], Feb., 1867, pp. 92–98.

Popular account of an individual hatched and reared in confinement.

1867. FEILDEN, H. W. Breeding of the Blackheaded Gull [Larus ridibundus] at Pilling Moss, Lancashire. < *Zoologist*, 2d ser., ii, 1867, pp. 832, 833.

1867. FURNEAUX, A. Sabine's Gull [Xema sabinii] in Cornwall. < *Zoologist*, 2d ser., ii, 1867, p. 608.

1867. GREENWOOD, H. Gulls vomiting their Food. < *Zoologist*, 2d ser., ii, 1867, p. 711.

1867. GUNN, T. E. Piebald Variety of the Common Skua [Stercorarius skua]. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. GUNN, T. E. Buffon's Skua [Stercorarius buffoni] on the Norfolk Coast. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. GURNEY, J. H. Little Gull [Larus minutus] at Flamborough Head, Iceland Gull [Larus leucopterus] in Orkney and Tithys Redstart at Minehead. < *Zoologist*, 2d ser., ii, 1867, p. 1018.

1867. KNIGHT, J. Masked, Iceland and Glaucus Gulls [Larus capistratus, leucopterus, glaucus] near Scarborough. < *Zoologist*, 2d ser., ii, 1867, p. 637.
From the London 'Field,' Jan. 26.

1867. MATHEW, M. A. Sabine's Gull [Xema sabinii] at Weston-super-Mare. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. MORRIS, F. O. Sabine's Gull [Xema sabinii] in Cornwall. < *Zoologist*, 2d ser., ii, 1867, p. 710.

1867. SCLATER, P. L. [Remarks on Gulls (Larinæ, three spp.) living in the Society's Menagerie.] < *P. Z. S.*, xxxv, 1867, pp. 315, 316.

1867. POWER, W. H. Gulls in Kent. < *Zoologist*, 2d ser., ii, 1867, pp. 710, 711.

1867. SMEE, A. H. Arctic Tern [Sterna macrura] near Gravesend. < *Zoologist*, 2d ser., ii, 1867, p. 1017.

1867. SMEE, A. H. Skua [Stercorarius skua] on the Thames. < *Zoologist*, 2d ser., ii, 1867, pp. 1017, 1018.

1867. SMEE, A. H. Sandwich Tern [Sterna cantiaca] at Whitby. < *Zoologist*, 2d ser., ii, 1867, p. 1018.

1867. STEVENSON, H. Occurrence of the Whitewinged Black Tern [Hydrochelidon leucoptera] in Norfolk. < *Zoologist*, 2d ser., ii, 1867, p. 951.

1868. ASHMEAD, G. B. Little Gull [Larus minutus] in the Thames. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. BLAKE-KNOX, H. Part II.—Being an Account of its [Larus canus] Plumages and Transformations from the Nestling to the Adult Bird. < *Zoologist*, 2d ser., iii, 1868, pp. 1075–1088.
The sixth of a series with major title "Letters on Ornithology."

1868. BLAKE-KNOX, H. Sabine's Gull [Xema sabinii] in Dublin Bay. < *Zoologist*, 2d ser., iii, 1868, p. 1099.

1868. BLAKE-KNOX, H. Sabine's Gull [Xema sabinii] in the County Down. < *Zoologist*, 2d ser., iii, 1868, p. 1099.

1868. BLAKE-KNOX, H. Iceland and Glaucous Gulls [Larus leucopterus, glaucus] off the Dublin Coast. < *Zoologist*, 2d ser., iii, 1868, p. 1463.

1868. DUTTON, J. Pomarine Skua [Stercorarius pomatorhinus] at Eastbourne. < *Zoologist*, 2d ser., iii, 1868, p. 1099.

1868. GURNEY, J. H. Iceland Gull [Larus leucopterus] off Brixham. < *Zoologist*, 2d ser., iii, 1868, p. 1222.

1868. GURNEY, J. H., JR. Little Gull [Larus minutus] at Flamborough. < *Zoologist*, 2d ser., iii, 1868, p. 1379.

1868. GURNEY, J. H., JR. Little Gull [Larus minutus] near Bridlington. < *Zoologist*, 2d ser., iii, 1868, p. 1424.

1868. GURNEY, J. H., JR. Common Skua [Stercorarius skua] on the Dogger Bank. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Richardson's Skua [Stercorarius richardsoni] near Flamborough. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Pomarine Skua [Stercorarius pomatorhinus] near Bridlington. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Little Gull [Larus minutus] at Flamborough. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Little Gull [Larus minutus] near Bridlington. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Little Gull [Larus minutus] near Filey. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. GURNEY, J. H., JR. Little Gulls [Larus minutus] on the Yorkshire Coast. < *Zoologist*, 2d ser., iii, 1868, p. 1482.

1868. GURNEY, J. H., JR. Pomarine Skua [Stercorarius pomatorhinus] at Flamborough. < *Zoologist*, 2d ser., iii, 1868, p. 1482.

1868. GUNN, T. E. Pomarine Skua [Stercorarius pomatorhinus] on the Norfolk Coast. < *Zoologist*, 2d ser., iii, 1868, p. 1483.

1868. HARVIE-BROWN, J. A. Wide-awake Terns [Sterna fuliginosa?]. < *Zoologist*, 2d ser., iii, 1868, pp. 1098, 1099.

1868. SMITH, CECIL. Black Tern [Hydrochelidon nigra] in Somersetshire. < *Zoologist*, 2d ser., iii, 1868, p. 1378.

1868. SMITH, CECIL. Lesser Tern [Sterna minuta] in Devonshire. < *Zoologist*, 2d ser., iii, 1868, p. 1378.

1868. WALKER, T. C. Kittiwake [Rissa tridactyla]: Correction of an Error [Zool., s. s., p. 1367]. < *Zoologist*, 2d ser., iii, 1868, p. 1424.

1869. BLAKE-KNOX, H. Glaucous and Iceland Gulls [Larus glaucus, leucopterus] in Kingstown Harbour, County Dublin. < *Zoologist*, 2d ser., iv, 1869, pp. 1517, 1518.

1869. BLAKE-KNOX, H. Iceland Gull [Larus leucopterus] in Kingstown Harbour, County Dublin. < *Zoologist*, 2d ser., iv, 1869, p. 1564.

1869. CLOGG, S. Little Gull [Larus minutus] at Looe. < *Zoologist*, 2d ser., iv, 1869, pp. 1563, 1564.

1869. DRESSER, H. E. [Exhibition of, and remarks on, the eggs of Larus minutus.] < *P. Z. S.*, xxxvii, 1869, pp. 530, 531.

1869. GUNN, T. E. Little Gull [Larus minutus] near Yarmouth. < *Zoologist*, 2d ser., iv, 1869, p. 1518.

1869. GUNN, T. E. Sandwich Tern [Sterna cantiaca] on the Norfolk Coast. < *Zoologist*, 2d ser., iv, 1869, p. 1517.

1869. GUNN, T. E. Voracity of the Common Gull [Larus canus]. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1869. GUNN, T. E. Black Tern's [Hydrochelidon nigra] Egg in Norfolk. < *Zoologist*, 2d ser., iv, 1869, p. 1868.

1869. HARTING, J. E. Sooty Tern [Sterna fuliginosa] at Wallingford. < *Zoologist*, 2d ser., iv, 1869, pp. 1867, 1868.

1869. HUNTER, J. Kittiwake Gull [Rissa tridactyla] near Faversham. < *Zoologist*, 2d ser., iv, 1869, p. 1518.

1869. KÖNIG-WARTHAUSEN, *Baron* R. Revue der Sterna-Eier. < *Bericht über d. xvii. Versamml. d. Deutsch. Ornith. Gesellsch.*, 1869, pp. 36–39.

Not seen.—The oological characters, so far as known to the author, of all the species of *Sterninæ* are briefly given.

1869. MATHEW, G. F. Little Gull [Larus minutus, at Braunton]. < *Zoologist*, 2d ser., iv, 1869, p. 1803.

1869. NEWMAN, E. Curious Malformation in a Gull's Leg. < *Zoologist*, 2d ser., iv, 1869, p. 1685, fig.

1869. RICKARDS, M. S. C. Pomarine Skua [Stercorarius pomatorhinus] at Exmouth. < *Zoologist*, 2d ser., iv, 1869, p. 1518.

1869. SKINNER, A. Kittiwake Gull [Rissa tridactyla] in Faversham Creek. < *Zoologist*, 2d ser., iv, 1869, p. 1564.

1869. SMEE, A. H. Kittiwake Gulls [Rissa tridactyla] on the Thames. < *Zoologist*, 2d ser., iv, 1869, pp. 1645, 1646.

1869. WALLIS, H. M. Pomerine Skua [Stercorarius pomatorhinus] at Aldeburgh. < *Zoologist*, 2d ser., iv, 1869, p. 1868.

1869. WONFOR, T. W. Little Gull [Larus minutus] at Brighton. < *Zoologist*, 2d ser., iv, 1869, p. 1563.

1869. WONFOR, T. W. Little Gulls [Larus minutus] in Sussex. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1870. ALSTON, E. R. Kittiwake Gull [Rissa tridactyla]. < *Zoologist*, 2d ser., v, 1870, p. 2108.

1870. ANON. A Rare Visitor [Stercorarius pomatorhinus, in Pennsylvania]. < *Am. Nat.*, iv, 1870, p. 57.

1870. BELL, A. S. Little Gulls [Larus minutus] on the Yorkshire Coast. < *Zoologist*, 2d ser., v, 1870, p. 2107.

1870. BLAKE-KNOX, H. About the Kittiwake's [Rissa tridactyla] First Winter Plumage, &c. < *Zoologist*, 2d ser., v, 1870, pp. 2119–2124.
Cf. *Zool.*, s. s., p. 2184.

1870. BOND, F. Little Gulls [Larus minutus] in Leadenhall Market. < *Zoologist*, 2d ser., v, 1870, p. 2066.

1870. BOND, F. Little Gull [Larus minutus] in the City. < *Zoologist*, 2d ser., v, 1870, p. 2108.

1870. BOYES, F. Common and Sandwich Terns [Sterna hirundo, S. cantiaca] at Spurn. < *Zoologist*, 2d ser., v, 1870, p. 2026.

1870. BOYNTON, T. Little Gulls [Larus minutus] at Bridlington Bay. < *Zoologist*, 2d ser., v, 1870, p. 2107.
From the London 'Field,' Feb. 26.

1870. CORDEAUX, J. Common and Sandwich Terns [Sterna hirundo, S. cantiaca] at Spurn. < *Zoologist*, 2d ser., v, 1870, pp. 2065, 2066.

1870. CORNISH, T. Blackheaded Gulls [Larus ridibundns] in Penzance. < *Zoologist*, 2d ser., v, 1870, p. 2143.

1870. GUNN, T. E. Little Gull [Larus minutus] on the Norfolk Coast. < *Zoologist*, 2d ser., v, 1870, p. 1982.

1870. GUNN, T. E. Abundance of the Little Gull [Larus minutus] on the Norfolk Coast. < *Zoologist*, 2d ser., v, 1870, pp. 2107, 2108.

1870. GURNEY, J. H., JR. Pied Head in the Common Skua [Stercorarius skua]. < *Zoologist*, 2d ser., v, 1870, p. 2386.

1870. JONES, J. M. On the Laridæ of the Nova Scotian Coast. < *Trans. Nov. Scot. Inst. Nat. Sci.*, ii, pt. iv, 1870, pp. 52–57.
Field-notes on 7 spp.

1870. MATHEW, M. A. Glaucous Gull [Larus glaucus] at Weston-super-Mare. < *Zoologist*, 2d ser., v, 1870, p. 2066.

1870. MÖBIUS, K. Absonderliche Nahrung einer jungen Möve [Larus argentatus]. < *J. f. O.*, xviii, 1870, p. 118.

1870. RAMSEY, R. G. W. Little Gull [Larus minutus] at Coldingham. < *Zoologist*, 2d ser., v, 1870, p. 2026.

1870. SMEE, A. H. Common Tern [Sterna hirundo] in Oxfordshire. < *Zoologist*, 2d ser., v, 1870, p. 2308.

1870. STUBBS, C. E. Terns at Henley-on-Thames. < *Zoologist*, 2d ser., v, 1870, p. 2347.

1871. Blake-Knox, H. Little Gull [Larus minutus] in Dublin Bay and in Londonderry. < *Zoologist*, 2d ser., vi, 1871, p. 2646.

1871. Boyes, F. Iceland Gull [Larus leucopterus] in East Yorkshire. < *Zoologist*, 2d ser., vi, 1871, p. 2488.

1871. Boyes, F. Glaucous Gulls [Larus glaucus] in East Yorkshire. < *Zoologist*, 2d ser., vi, 1871, p. 2488.

1871. Boyes, F. Little Gull [Larus minutus] in East Yorkshire. < *Zoologist*, 2d ser., vi, 1871, p. 2528.

1871. Hammond, W. O. Terns at St. Alban's Court. < *Zoologist*, 2d ser., vi, 1871, pp. 2684, 2685.

1871. Jones, J. M. On the Gulls [Laridæ] of the Nova Scotian Coast. < *Canad. Nat. and Quart. Journ.*, v, 1871, pp. 231, 232.

10 spp.

1871. Möbius, K. Ein Besuch der Insel Sylt in Mai 1870. < *Zool. Gart.*, 1871, p. 193.

Account of a visit to a nesting-place of *Sterna caspia;* 17 nests, where in 1819 300 were reckoned by Naumann, and subsequently 200 by F. Boie.

1871. Sclater, P. L., *and* Salvin, O. A Revised List of the Neotropical Laridæ. < *P. Z. S.*, xxxix, 1871, pp. 564–580, woodcc.

Treating of 32 species, belonging to the subfamilies *Rhynchopinæ*, *Sterninæ*, *Larinæ*, and *Lestridinæ*, which are divided into four categories:—Tropical (15), Antarctic (4), Arctic (9), and Tropicopolitan (4), according to their range. Their synonymy is worked out with care, and many rectifications are made. No new species are described; but the heads of *Sterna maxima*, *S. galericulata*, *Larus heermanni*, *L. belcheri*, and *Leucophæus scoresbii* are figured. The name *Chroicocephalus* is spelled *Chroocephalus*.

It may be observed that the authors' use of *Sterna maxima* Bodd. for what American ornithologists had mostly called *S. regia* Gamb. is doubtless correct; but it has been since shown that their reference of *S. elegans* Gamb. to *S. galericulata* Licht. is erroneous. The paper on the whole is of a high degree of reliability.

1871. Smith, Cecil. Iceland Gull [Larus leucopterus] in Somersetshire. < *Zoologist*, 2d ser., vi, 1871, p. 2488.

1871. Stevenson, H. On the Abundance of Little Gulls [Larus minutus] on the Norfolk Coast in the Winter of 1869–70. < *Zoologist*, 2d ser., vi, 1870, pp. 2499–2504.

1871. Stubbs, C. E. Black Tern [Hydrochelidon nigra] at Henley-on-Thames. < *Zoologist*, 2d ser., vi, 1871, p. 2684.

1871. Swinhoe, R. On a New Chinese Gull [Chroicocephalus saundersi]. < *P. Z. S.*, xxxix, 1871, pp. 273–275, pl. xxii.

1871. Wharton, C. B. Black Tern [Hydrochelidon nigra] at Elstree Reservoir. < *Zoologist*, 2d ser., vi, 1871, p. 2810.

1872. Anderson, A. [On the nidification of Sterna leucoparia in Oudh.] < *Ibis*, 3d ser., ii, 1872, pp. 81–83.

1872. Durnford, H. Dark Variety of Richardson's Skua [Stercorarius richardsoni]. < *Zoologist*, 2d ser., vii, 1872, p. 3339.

1872. Gould, J. [Remarks on exhibition of a specimen of Larus rossi (Rhodostethia rosea) in adult summer plumage.] < *P. Z. S.*, 1872, p. 1.

1872. Gurney, J. H. Pomarine Skuas [Stercorarius pomatorhinus] in Torbay. < *Zoologist*, 2d ser., vii, 1872, pp. 2946, 2947.

1872. Gurney, J. H. Pomarine Skuas [Stercorarius pomatorhinus] in Torbay. < *Zoologist*, 2d ser., vii, 1872, p. 2995.

1872. Hadfield, H. Common Tern [Sterna hirundo, near Dunnose]. < *Zoologist*, 2d ser., vii, 1872, p. 2906.

1872. Hügel, A. v. Gullbilled Tern [Sterna anglica] in Hampshire. < *Zoologist*, 2d ser., vii, 1872, pp. 3149, 3150.

1872. GURNEY, J. H., JR. Sabine's Gull [Xema sabinii] at Bridlington. < *Zoologist*, 2d ser., vii, 1872, p. 3316.

1872. MÖBIUS, K. Norderoog, ein Brutplatz der Brand-Seeschwalbe, Sterna cantiaca, im Schleswigschen Waltenmeere. < *Zool. Gart.*, xiii, 1872, pp. 202–204.
Colony estimated at 20,000.

1872. NEWTON, A. [Remarks on exhibition of a specimen of Larus rossi (Rhodostethia rosea) in winter plumage.] < *P. Z. S.*, 1872, p. 1.

1872. POTTS, T. H. Notes on a New Species of Gull, Larus (Bruchigavia) Bulleri, Potts. < *Trans. and Proc. New Zealand Inst. for* 1871, iv, 1872, pp. 203, 204.

1872. RODD, E. H., *and* YARRELL, W. [Critical notes on] The British Skuas (Lestris). < *Zoologist*, 2d ser., vii, 1872, pp. 2933–2935.

1872. RODD, E. H. Glaucous and Iceland Gulls [Laras glaucus, L. leucopterus] in Mount's Bay. < *Zoologist*, 2d ser., vii, 1872, p. 3065.

1872. RODD, E. H. Gullbilled Tern [Sterna anglica] at St. Just, near Penzance. < *Zoologist*, 2d ser., vii, 1872, p. 3188.

1872. SAUNDERS, H. [Letter on Larus melanocephalus, shot near Barking Creek in January, 1866.] < *Ibis*, 3d ser., ii, 1872, pp. 79, 80.

1872. SMEE, A. H. Blackheaded Gulls [Larus ridibundus] in Oxfordshird. < *Zoologist*, 2d ser., vii, 1872, p. 3316.

1872. TUCK, J. G. Richardson's Skua [Stercorarius richardsoni] at Rye. < *Zoologist*, 2d ser., vii, 1872, p. 2907.

1873. BREE, C. R. [Distinctness of Larus leucophæus and] Larus cachinnans. < *Zoologist*, 2d ser., viii, 1873, pp. 3695, 3696.

1873. DURNFORD, H. Glaucous Gull [Larus glaucus] at Southwold, Suffolk. < *Zoologist*, 2d ser., viii, 1873, p. 3413.

1873. DURNFORD, H. Nesting of the Sandwich Tern [Sterna cantiaca] on Walney Island. < *Zoologist*, 2d ser., viii, 1873, p. 3773.

1873. GRAY, ROBERT. [On an unprecedented influx of Laridæ in the Firth of Forth, attracted by shoals of sprats.] < *Ibis*, 3d ser., iii, 1873, pp. 332, 333.

1873. GRAY, ROBERT. On some of the Sea Gulls [Laridæ] frequenting the Estuary of the Forth during the Winter of 1872–3. < *Proc. Nat. Hist. Soc. Glasgow*, Jan. 7, 1873, pp. 198–—.
Not seen—title from J. A. Harvie-Brown.
Also separately reprinted, with a paper on the Iceland Gull by J. A. Harvie-Brown, read Jan. 28, 1873, 8vo, pp. 198–212.

1873. HARVIE-BROWN, J. A. On the occurrence of The Iceland Gull [Larus islandicus] in the Estuary of the Forth during the Winter of 1872–3. < *Proc. Nat. Hist. Soc. Glasgow*, Jan. 28, 1873, pp. —–212.
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Also separately printed, with a paper on the Gulls of that locality by Robert Gray, read Jan. 7, 1873, 8vo, pp. 198–212.

1873. HUTTON, F. W. On the Flight of the Black-backed Gull (Larus dominicanus). < *Trans. and Proc. New Zealand Inst. for* 1872, v, 1873, pp. 140–144.

1873. MATHEW, G. F. [Note on habits of] Gulls off Valparaiso. < *Zoologist*, 2d ser., viii, 1873, pp. 3493, 3494.

1873. RODD, E. H. Iceland Gull [Larus leucopterus] at Mount's Bay. < *Zoologist*, 2d ser., viii, 1873, p. 3455.

1873. WHITAKER, J., JR. Glaucous Gull [Larus glaucus] in Nottinghamshire. < *Zoologist*, 2d ser., viii, 1873, p. 3493.

1874. BALL, R. Affection of the Sea Gull for its Young. < *Zoologist*, 2d ser., ix, 1874, p. 4201.

1874. Batty, J. H. Pugnacity of the Great Black-back Gull [Larus marinus]. < *Forest and Stream*, ii, Mar. 12, 1874, p. 70.

1874. Brewer, T. M. A New North American Bird [Hydrochelidon leucoptera, in Wisconsin]. < *Am. Nat.*, viii, 1874, pp. 188, 189.

1874. Brewster, W. A new Bird to Massachusetts [Sterna regia]. < *Am. Sportsman*, iv, 1874, p. 257.

1874. Boyes, F. Glaucous Gulls [Larus glaucus] in East Yorkshire. < *Zoologist*, 2d ser., ix, 1874, pp. 3836, 3837.

1874. Clark-Kennedy, A. J. Iceland Gull [a peculiarity of Larus leucopterus]. < *Zoologist*, 2d ser., ix, 1874, pp. 4078, 4079.

1874. Coues, E. Monograph of the North American Laridæ. < *Birds of the Northwest*, 1874, pp. 589–717.

The auther had paid special attention to the subject, and published three preliminary papers in *Pr. Phila. Acad.*, 1862–'3 (*q. v.*), when the ordering of the *Birds of the Northwest* by the Government gave him an opportunity of reviewing the case, and of presenting much additional matter which had long lain in MSS. The subject was reworked for appearance in the present connection, to include full descriptions of the genera and species, full synonymy, extensive criticism, and some considerable anatomical matter. A large number of colored illustrations had been prepared, but it was not found practicable to use them. (N. B. Many of these will probably appear in the last volume of Baird, Brewer, and Ridgway's *History of North American Birds*, now (Aug., 1880) said to be about to go to press.

The genera and species recognized by the author are as follows:

I. Lestridinæ.—1. *Buphagus skua*; a, *skua*; b, *antarcticus*. 2. *Stercorarius pomatorhinus*. 3. *S. parasiticus* (Brünn.). 4. *S. buffoni* (Boie).

II. Larinæ.—1. *Larus glaucus*. 2. *L. leucopterus*. 3. *L. glaucescens*. 4. *L. marinus*. 5. *L. argentatus*; a, *argentatus*; b, *smithsonianus*; c, *occidentalis*; d, *borealis*; e? *leucophæus*. 6. *L. californicus*. 7. *L. delawarensis*, 8. *L. canus*; a, *canus*; b, *niveus*; c, *brachyrhynchus*. 9. *L.* (*Blasipus*) *heermanni*. 10. *L.* (*Rissa*) *tridactylus*; a, *tridactylus*; b, *kotzebui*. 11. *L.* (*R.*) *brevirostris* Brandt. 12. *L.* (*Pagophila*) *eburneus*. 13. *L.* (*Chrœcocephalus*) *atricilla*. 14. *L.* (*C.*) *franklini*. 15. *L.* (*C.*) *philadelphia*. 16. *Rhodostethia rosea*. 17. *Xema sabinei*. 18. *Xema furcatum*.

III. Sterninæ.—1. *Sterna* (*Gelochelidon*) *anglica*. 2. *S.* (*Thalasseus*) *caspia*. 3. *S.* (*T.*) *regia*. 4. *S.* (*T.*) *galericulata* (=*elegans*). 5. *S.* (*T.*) *cantiaca*. 6. *S. trudeaui*. 7. *S. forsteri*. 8. *S. hirundo*. 9. *S. macrura*. 10. *S. dougalli*. 11. *S. portlandica* Ridg. (since abolished.) 12. *S. superciliaris* var. *antillarum*. 13. *S. aleutica*. 14. *S.* (*Haliplana*) *fuliginosa*. 15. *S.* (*H.*) *anæstheta*. 16. *Hydrochelidon lariformis* (L., 1758). 17. *H. nigra* (=*leucoptera* Meisn. & Schinz). 18. *Anous stolidus*.

IV. Rhynchopinæ.—1. *Rhynchops nigra*.

Various extralimital species are incidentally treated in addition to those recognized as North American.

1874. Evans, J. Arctic Skua [Stercorarius buffoni] in Lincolnshire. < *Zoologist*, 2d ser., ix, 1874, p. 3837.

1874. Harvie-Brown, J. A. Glaucous Gull [Larus glaucus: cf. Zool., s. s., p. 4078]. < *Zoologist*, 2d ser., ix, 1874, p. 4120.

1874. Herrick, H. A Sea Bird [Stercorarius parasiticus] away from Home. < *Am. Sportsman*, v, Dec. 12, 1874, p. 167.

Occurrence of this species at Chatham, N. J.

1874. Kirtland, J. P. A rare Bird [Stercorarius richardsoni, in Ohio]. < *Proc. Cleveland Acad. Nat. Sci.*, 1874, p. 133. [Read 1857.]

1874. Maynard, C. J. A Naturalist on the National [Sportsmen's Association]. < *Am. Sportsman*, iv, 1874, p. 329.

Statements as to slaughter of Gulls and Terns (*Laridæ*), etc., along the New England coast; causes of decrease of birds.

1874. Randall, W. S. The Common Gull (Larus canus) in Captivity. < *Zoologist*, 2d ser., ix, 1874, pp. 4129–4131.

1874. Rickards, M. S. C. Pomarine Skua [Stercorarius pomatorhinus] in North Devon. < *Zoologist*, 2d ser., ix, 1874, pp. 4240, 4241.

1874. RICKARDS, M. S. C. Richardson's Skua [Stercorarius richardsoni] near Clevedon and at Instow. < *Zoologist*, 2d ser., ix, 1874, p. 4241.

1874. RIDGWAY, R. Notice of a Species of Tern [Sterna portlandica, sp. n.] new to the Atlantic Coast of North America. < *Am. Nat.*, viii, 1874, p. 433.

This alleged new species occasioned considerable writing before it was finally identified with *S. macrura*.

1874. RODD, E. H. Buffon's Skua [Stercorarius buffoni] near Falmouth. < *Zoologist*, 2d ser., ix, 1874, pp. 4239, 4240.

1874. SAUNDERS, H. Remarks on the Grey-capped Gulls [Cirrhocephalus Bp.] and on the Species with which they have been confounded. < *P. Z. S.*, 1874, pp. 291–295.

1874. SCLATER, P. L. The Yellow-legged Herring-Gull [Larus leucophæus]. < *Ibis*, 3d ser., iv, 1874, p. 100.

A note on its geographical distribution.

1874. SHAW, J. Little Gull [Larus minutus] near Shrewsbury. < *Zoologist*, 2d ser., ix, 1874, p. 4262.

1874. TAYLOR, W. Caspian Tern [Sterna caspia] at Birmingham. < *Zoologist*, 2d ser., ix, 1874, pp. 4036, 4037.

1874. "W. M. S." A Domesticated Gull. < *Am. Sportsman*, iv, 1874, p. 171.

1875. ANON. [Mode of catching Sea Gulls alive at Mt. Desert, Maine.] < *Forest and Stream*, v, Dec. 23, 1875, p. 308.

1875. BENNER, F. Sterna portlandica. < *Rod and Gun*, vi, Apr. 3, 1875, p. 7. See also p. 56.

1875. BREWSTER, W. Some notes on a new species of North American Tern [Sterna portlandica]. < *Am. Sportsman*, v, Jan. 16, 1875, p. 249.

Notice of *Sterna portlandica*, Ridg., collected on Muskeget Island, Mass., July 1, 1870.

1875. BREWSTER, W. A New Bird [Sterna regia] to Massachusetts. < *Am. Sportsman*, v, Jan. 16, 1875, p. 249.

Capture of ♂ and ♀ on Nantucket Island, July 1, 1874; the female bore marks of breeding.

1875. BREWSTER, W. Occurrence of the Fork-tailed Gull [Xema sabinii] in Mass[achusetts]. < *Am. Sportsman*, v, Mar. 13, 1875, p. 370.

Read before Nuttall Ornithological Club, 1875.

1875. BULLER, W. L. Notes on an alleged new Species of Tern (Sterna alba, Potts). < *Trans. and Proc. New Zealand Inst. for* 1874, vii, 1875, pp. 214, 215.

1875. COPE, W. J. Blackheaded Gulls [Larus ridibundus] at South Kirkby. < *Zoologist*, 2d ser., x, July, 1875, p. 4541.

1875. "F. W. S." Sterna portlandica. < *Am. Sportsman*, v, Feb. 13, 1875, p. 314.

Its nesting in numbers on an island off the coast of Maine. (= *S. macrura.*)

1875. GURNEY, J. H., JR. Herring Gulls [Larus argentatus] carrying off wounded Dunlins. < *Zoologist*, 2d ser., x, Oct., 1875, pp. 4666, 4667.

1875. GURNEY, J. H., JR. Audacity of a Common Skua (Stercorarius catarrhactes (Linn.). < *Zoologist*, 2d ser., x, Nov., 1875, pp. 4698, 4699.

1875. LEGG, W. H. Little Gull [Larus minutus] in Summer Plumage in February. < *Zoologist*, 2d ser., x, May, 1875, p. 4459.

1875. MATHEW, M. A. Pomatorrhine Skua [Stercorarius pomatorhinus] at Instow. < *Zoologist*, 2d ser., x, Jan., 1875, p. 4300.

1875. MAYNARD, C. J. Bird murder—Sterna portlandica. < *Rod and Gun*, vi, Apr. 24, 1875, p. 56. See also p. 7.

1875. NEWTON, [A.] [Exhibition of two specimens of Rhodostethia rosea from Greenland.] < *P. Z. S.*, May 4, 1875, p. 349.

1875. NICHOLLS, H., JR. Singular Freak of a Herring Gull [Larus argentatus]. < *Zoologist*, 2d ser., x, Nov., 1875, p. 4698.

1875. Ridgway, R. Note on Sterna longipennis Nordmann. < *Am. Nat.*, ix, No. 1, Jan., 1875, pp. 54, 55.

Critical comparison of *SS. hirundo, longipennis, portlandica,* and *pikei.*

1875. Rocke, J. Correction of an Error [Zool., s. s., p. 4262, respecting Xema sabinii]. < *Zoologist*, 2d ser., x, Jan., 1875, pp. 4299, 4300.

1875. Saunders, H. [Remarks on a Gull from Lower California, referable to Larus fuscus.] < *P. Z. S.*, Mar. 16, 1875, p. 158.

1875. Saunders, H. On the Immature Plumage of Rhodostethia rosea. < *Ibis*, 3d ser., v, 1875, pp. 484–487.

With enumeration of 11, perhaps 12, known specimens of this species.

1875. Warren, R., Jr. Notes on the Autumnal Migration of Lestris Richardsonii and L. pomarinus in Killala Bay and the Moy Estuary. < *Zoologist*, 2d ser., x, Nov., 1875, pp. 4699–4703.

1876. A[llen], J. A. The Portland Tern [Sterna portlandica]. < *Bull. Nutt. Ornith. Club*, i, No. 3, Sept., 1876, pp. 71, 72.

Notice of W. Brewster's paper, *Ann. Lyc. Nat. Hist. N. Y.*, xi, p. 200, where *Sterna portlandica* is referred to *S. macrura.*

1876. Brewster, W. Some Additional Light on the so-called Sterna portlandica, Ridgway. < *Ann. Lyc. Nat. Hist. N. Y.*, xi, Nov., 1875, pub. Feb., 1876, pp. 200–207.

Critical examination of the supposed species, which is identified with *S. macrura.*

1876. Brewster, W. Sterna portlandica, Ridgway. < *Rod and Gun*, viii, Apr. 15, 1876, p. 37.

Reprinted from *Ann. Lyc. Nat. Hist. N. Y.*, xi, Nov., 1875, pub. Feb., 1876, p. 200.

1876. Darragh, T. Audacity of the Common Skua [Stercorarius skua]. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4883.

1876. Gurney, J. H., Jr. Black Tern [Hydrochelidon nigra] in Durham. < *Zoologist*, 2d ser., xi, Jan., 1876, pp. 4766, 4767.

1876. Gurney, J. H., Jr. Second Instance of the Audacity of the Skua [Stercorarius skua]. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4804.

1876. Gurney, J. H., Jr. Sabine's Gull [Xema sabinii] at Bridlington Quay. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4883.

1876. Gurney, J. H., Jr. Kittiwake [Rissa tridactyla] in Winter. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5048.

1876. Hadfield, H. Common Gull [Larus canus]. < *Zoologist*, 2d ser., xi, June, 1876, pp. 4959, 4960.

1876. Harvie-Brown, J. A. "Kittiwake [Rissa tridactyla] in Winter" (Zool. S. S. 5048). < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5086.

1876. Heaton, W. H. Does the Common Gull [Larus canus] breed in the Scilly Isles? < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5126.

1876. [Ingersoll, E.] Sterna Portlandica. < *Forest and Stream*, vi, Mar. 23, 1876, p. 100.

Review of paper (*Ann. Lyc. Nat. Hist. N. Y.*, xi, Nov., 1875, p. 200) on *Sterna portlandica.*

1876. Jouy, P. L. Notes on Forster's Tern. Sterna forsteri, Nutt. < *Field and Forest*, ii, No. 2, Aug., 1876, pp. 29–31.

As observed in the District of Columbia, U. S.

1876. Kerry, F. Iceland Gull [Larus leucopterus] at Aldeburgh. < *Zoologist*, 2d ser., xi, 1876, p. 4848.

1876. Le Baron, J. F. Short-Tailed Tern [Hydrochelidon nigra] in Massachusetts. < *Forest and Stream*, v, Jan. 20, 1876, p. 372.

1876. Mathew, M. A. Herring Gulls [Larus argentatus] at Tintagel. < *Zoologist*, 2d ser., xi, Oct., 1876, pp. 5126, 5127.

1876. Saunders, H. On the Stercorariinæ or Skua Gulls. < *P. Z. S.*, Mar. 21, 1876, pp. 317–332, pl. xxiv.

Monographic; copious synonymy, description and criticism. The author recognizes one genus and 6 spp. *Stercorarius catarrhactes*, *S. antarcticus*, *S. chilensis* (figured pl. 24), *S. pomatorhinus*, *S. crepidatus* (=*parasiticus* auct.), and *S. parasiticus* L. (=*buffoni* auct.). Of the smaller species the same three spp. as given by Coues are recognized, but the synonymy is much better worked out.

1876. Saunders, H. On the Sterninæ, or Terns, with Descriptions of three new Species. < *P. Z. S.*, June 20, 1876, pp. 638–672, figg. 1–5, pl. lxi.

The second of three papers in which the Jägers, Terns, and Gulls are respectively monographed. The author studied the family diligently, and enjoyed exceptional facilities for examining type-specimens; his results, therefore, being entitled to much consideration. After some general remarks, the following species are treated with synonymy, criticism, geographical distribution, and in some cases with description:—

1, *Hydrochelidon hybrida*; 2, *H. leucoptera*; 3, *H. nigra*. 4, *Sterna magnirostris*; 5, *S. anglica*; 6, *S. seena*; 7, *S. melanogastra*; 8, *S. antarctica*; 9, *S. virgata*; 10, *S. vittata*; 11, *S. hirundinacea*; 12, *S. albigena*; 13, *S. fluviatilis*; 14, *S. tibetana*, sp. n., p. 649; 15, *S. longipennis*; 16, *S. macrura*; 17, *S. forsteri*; 18, *S. dougalli*; 19, *S. cantiaca*; 20, *S. elegans*; 21, *S. eurygnatha*, sp. n., p. 654, fig. 1; 22, *S. media*; 23, *S. maxima*; 24, *S. caspia*; 25, *S. bernsteini*; 26, *S. bergii*; 27, *S. frontalis*; 28, *S. trudeauii*; 29, *S. melanauchen*; 30, *S. minuta*; 31, *S. antillarum*; 32, *S. superciliaris*; 33, *S. sinensis*; 34, *S. sumatrana*; 35, *S. nercis*; 36, *S. exilis*; 37, *S. balœnarum*; 38, *S. aleutica*; 39, *S. anæstheta*, fig. 3; 40, *S. lunata*; 41, *S. fuliginosa*, fig. 2. 42, *Nœnia inca*. 43, *Gygis candida*, fig. 4; 44, *G. microrhyncha*, sp. n., p. 668, fig. 5. 45, *Anous stolidus*; 46, *A. tenuirostris*, pl. lxi, fig. 1; 47, *A. melanogenys*, pl. lxi, fig. 2; 48, *A. leueocapillus*, pl. lxi, fig. 3; 49, *A. cœruleus* (cf. *P. Z. S.*, 1878, p. 271, *seq.*).

See Coues, *Bull. Nutt. Ornith. Club*, iii, 1878, pp. 140–142.

1876. Tuck, J. G. Little Gulls [Larus minutus] off Flamborough Head. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4804.

1876. Tuck, J. G. Glaucous Gull [Larus glaucus] at Flamborough. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4804.

1876. Tuck, J. G. Sandwich Tern [Sterna cantiaca] on Filey Brigg. < *Zoologist*, 2d ser., xi, Feb., 1876, p. 4804.

1876. Tuck, J. G. Ivory Gull [Pagophila eburnea], &c. < *Zoologist*, 2d ser., xi, June, 1876, p. 4960.

1876. Walden, *Lord*. [Letter on Sterna albigena Rüpp. on the Bombay Coast.] < *Ibis*, 3d ser., vi, July, 1876, pp. 384, 385.

1876. Whitaker, J. Common Skua [Stercorarius skua] near Mansfield. < *Zoologist*, 2d ser., xi, Apr., 1876, p. 4883.

1877. Anderson, A. [Remarks on exhibition of young examples of Rhynchops albicollis and Seena aurantia.] < *P. Z. S.*, Dec. 4, 1877, p. 807.

No difference in the bills on first hatching, so that the extraordinary shape of that of *Rhynchops* must be later developed.

1877. Deane, R. Occurrence of the Sooty Tern [Sterna fuliginosa] in Massachusetts. < *Bull. Nutt. Ornith. Club*, ii, No. 1, Jan., 1877, p. 27.

1877. Gurney, J. H., Jr. [On a peculiar white stage of plumage of Larus glaucus.] < *Ibis*, 4th ser., i, Oct., 1877, p. 492.

This seems to be what Coues called *Larus hutchinsii* (after Rich., *F. B. A.*, ii, 1831, p. 419) in *Pr. Phila. Acad.*, 1862, p. 294. See Coues, *B. Northwest*, 1874, p. 621.

1877. Hume, A. O. [Letter on the distinctness of species of Anous, with reference to P. Z. S., 1876, p. 638, pl. lxi.] < *P. Z. S.*, Nov. 6, 1877, p. 683.

1877. Roberts, T. S. Notes on the Breeding of the Black Tern (Hydrochelidon lariformis) in Minnesota. < *Bull. Nutt. Ornith. Club*, ii, No. 2, Apr., 1877, pp. 34–36.

1877. Rowley, G. D. On Scoulton Mere, Norfolk, and the Black-headed Gull (Larus ridibundus). < *Rowl. Orn. Misc.*, ii, pt. x, Oct., 1877, pp. 407–416, pll. lxxvi-lxxviii.

Very interesting. The handsome plates represent scenery, filled with the birds.

1877. SAUNDERS, H. [On the Occurrence of the Panay Sooty Tern, Sterna anæstheta, in Great Britain.] < *P. Z. S.*, Feb. 6, 1877, p. 43.

1877. SAUNDERS, H. [Remarks on Exhibition of a Specimen of Sterna aleutica from Alaska.] < *P. Z. S.*, Nov. 20, 1877, p. 754.

1877. SAUNDERS, H. Reports on the Collections of Birds made during the Voyage of H. M. S. 'Challenger.'—No. V. On the Laridæ collected during the Expedition. < *P. Z. S.*, Nov. 20, 1877, pp. 794–800.

Remarks on 17 spp., with special reference to geographical distribution. "On the whole this collection of *Laridæ*, although small in numbers, is one of the most productive of knowledge which has yet been made by any of our national expeditions."

1877. [SCOTT, W. E. D.] Terns. < *The Country*, i, Dec. 1, 1877, p. 67.

Observations and data concerning the *Sterninæ* of the U. S. Atlantic Coast.

1878. ALLEN, J. A. Sabine's Gull [Xema sabinii] in Maine. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 195.

Only other New England record for this species is found in *Am. Sportsman*, v, 1875, p. 370; *Proc. Bost. Soc. Nat. Hist.*, xvii, 1875, p. 449.

1878. BALLOU, W. H. Additions to the Avi-fauna of Illinois. < *The Oölogist*, iv, No. 4, June, 1878, p. 32.

Stercorarius buffoni.

1878. BENNER, F. The gulls of New York Bay. < *The Country*, i, Jan. 5, 1878, p. 133.

1878. B[REWER], T. M. Saunders on the Larinæ. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, pp. 185–187.

Review of the paper in *P. Z. S.*, Feb. 5, 1878, pp. 155–212.

1878. BREWER, T. M. The Skua Gull (Stercorarius catarractes) on the Coast of Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 188.

A suspicious statement that this is the first recorded instance of its occurrence in "any part of North America other than Greenland". (*Cf.* Lawr. in *Baird's B. N. A.*, 1858, p. 838; "California".)

1878. BREWSTER, W. The Short-tailed Tern (Hydrochelidon fissipes) in Massachusetts. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 190.

Its common occurrence, where it had been considered a rare visitor.

1878. COLLINS, W. H. Notes on the Nesting of the Black Tern [Hydrochelidon lariformis], at St. Clair Flats, Mich[igan]., June 7, 1878. < *The Oölogist*, iv, No. 4, June, 1878, p. 26.

1878. COUES, E. Mr. H. Saunders on the Sterninæ. < *Bull. Nutt. Ornith. Club*, iii, No. 3, 1878, pp. 140–142.

Favorable review of the paper in *P. Z. S.*, 1876, pp. 638–672; presenting also a synonymatic synopsis of the 17 North American species, according to the author reviewed.

1878. DEANE, R. The Sooty Tern [Sterna fuliginosa] in New Hampshire. < *Bull. Nutt. Ornith. Club*, iii, No. 4, Oct., 1878, p. 195.

Its first recorded occurrence in that State, though well known as a bird of Massachusetts, Connecticut, and Rhode Island.

1878. [EDITORIAL.] Instinct in Birds. < *The Country*, ii, July 6, 1878, p. 168.

Remarks upon an anecdote of "instinct" in a Gull.

1878. FEILDEN, H. W. [Letter on the occurrence of Rhodostethia rosea in the Novaya Zemlya Sea.] < *Ibis*, 4th ser., ii, Apr., 1878, pp. 200, 201.

Shot by Julius Payer, summer of 1873; *Cf.* English ed. of *New Lands within Arctic Circle*, ii, p. 91.

1878. GAETKE, H. [Letter on the occurrence of Larus affinis in Heligoland.] < *Ibis*, 4th ser., ii, Oct., 1878, p. 489.

1878. ROWLEY, G. D. Larus tridactylus. (The Kittiwake Gull.) < *Rowl. Orn. Misc.*, iii, pt. xiv, May, 1878, pp. 233–236, pl. cxi.

1878. **Saunders, H.** On the Larinæ or Gulls. < *P. Z. S.*, Feb. 5, 1878, pp. 155–212, figg. 16.

This is an admirable memoir, which was immediately accepted as the leading authority upon the subject. The principal previous Laridists were Boie, Brehm, Bruch. Bonaparte, Schlegel, Blasius, Coues, and Sclater and Salvin.

"The literature of this group has been rendered specially intricate through the perverted ingenuity of two systematists who have undertaken its revision. Boie and Brehm are not guiltless. . . . But when Bonaparte and Bruch undertook the revision of the *Larinæ* of the whole world, they speedily enveloped the question in a perfect fog of synonymy; . . . and to the work of the declining days of both these authors we owe at least half of the synonymy which encumbers these pages. It was their intention to perform a similar office for the Terns; but death cut their plans short, . . ."

In Bonaparte's last completed list (for that in *Consp. Av.* was never finished) in *Comptes Rendus*, xlii, 1856, p. 770, he makes 68 spp. and 22 genn. of *Larinæ*, besides 5 doubtful species. Schlegel's *Mus. Pays-Bas* is said by Blasius to be the foundation of all true Gull-knowledge. Blasius reduces the species to 35. Saunders here gives 49 spp. under the 5 genera *Pagophila*, *Rissa*, *Larus*, *Rhodostethia*, and *Xema*. These are carefully treated, with copious synonymy, habitat, description in some cases, and the important critical remarks which Mr. Saunders's general familiarity with the subject and especially his examination of many type specimens enabled him to offer. Much of the "fog" is lifted from the subject, and many of the spectres of Bonaparte's and Bruch's distorting mediumship are laid, it is to be hoped, forever. The figures illustrate the pattern of the primaries of many of the species. The paper closes with correction of an error, *P. Z. S.*, 1876, p. 671, where two species are united under name of *Anous cœruleus*.

Saunders recognizes the following species:—1, *Pagophila eburnea.* 2, *Rissa tridactyla;* 3, *brevirostris.* 4, *Larus glaucus;* 5, *leucopterus;* 6, *glaucescens;* 7, *argentatus;* 8, *cachinnans;* 9, *affinis;* 10, *occidentalis;* 11, *fuscus;* 12, *californicus;* 13, *delawarensis;* 14, *canus;* 15, *brachyrhynchus;* 16, *auduboni;* 17, *marinus;* 18, *dominicanus;* 19, *pacificus;* 20, *belcheri;* 21, *heermanni;* 22, *crassirostris;* 23, *modestus;* 24, *fuliginosus;* 25, *scoresbii;* 26, *novæ hollandiæ* (figg. 1–3); 27, *scopulinus* (f. 4); 28, *hartlaubi* (f. 5); 29, *bulleri* (figg. 6, 7); 30, *gelastes* (f. 8); 31, *leucophthalmus;* 32, *hemprichi;* 33, *atricilla;* 34, *franklini;* 35, *serranus* (f. 9); 36, *brunneicephalus* (f. 10); 37, *ichthyaetus;* 38, *melanocephalus* (f. 11); 39, *ridibundus* (f. 12); 40, *maculipennis* (f. 13); 41, *glaucodes* (f. 14); 42, *cirrocephalus;* 43, *phæocephalus;* 44, *saundersi* (f. 15); 45, *minutus;* 46, *philadelphia* (f. 16). 47, *Rhodostethia rosea.* 48, *Xema sabinii;* 49, *X. furcatum.*

The following dates of introduction of generic names may be found useful:—

1766. *Larus*, Linn., *S. N.*, p. 224; for all Gulls. 1819. *Xema*, Leach, *App. Ross's Voy.*, p. lvii; *X. sabinii.* 1822. *Xema*, Boie, *Isis*, p. 563; for European hooded Gulls. 1844. *Xema*, Boie, *Isis*, p. 192; for various spp. (N. B. *Gavia*, Moehring, 1752, out of date; *Gavia*, Briss., 1760, indefinite.) 1822. *Gavia*, Boie, *Isis*, p. 563; *L. eburneus* and *L. tridactylus.* 1826. *Gavia*, Boie, *Isis*, p. 980; *L. eburneus.* 1844. *Gavia*, Boie, *Isis*, p. 191; various spp. 1829. *Gavia*, Kaup, *Sk. Ent. Eur. Thierw*,, pp. 99, 196; *L. ridibundus* and *L. capistratus.* 1842. *Gavia*, Macg., *Man. Brit. Orn.*, p. 239; for all hooded Gulls. 1853. *Gavia*, Bruch., *J. f. O.*, p. 106; for small grey-mantled hoodless Gulls. 1825. *Rissa*, Steph., *Shaw's Gen. Zool.*, xiii, pt. i, p. 180; *L. tridactylus.* 1829. *Cheimonea*, Kaup, *Sk. Ent. Eur. Thierw.*, pp. 84, 196; *L. tridactyla.* 1829. *Pagophila*, Kaup, *op. cit.*, pp. 69, 186; *L. eburneus.* 1829. *Lencus*, misprint for *Leucus*, Kaup, *op. cit.*, pp. 86, 196; for *L. marinus, glaucus, fuscus.* 1857. *Leucus*, Bp., *C. A.*, ii, p. 215; *L. glaucus*, etc. 1829. *Hydrocolœus*, Kaup, *op. cit.*, pp. 113, 196; *L. minutus*, etc. 1829. *Ichthyœtus*, Kaup, *op. cit.*, pp. 102, 196; *L. ichthyœtus.* 1831. *Laroides*, Brehm, *V. D.*, 738; for most European hoodless Gulls. 1836. *Chroicocephalus*, Eyton, *Brit. B.*, p. 53; for the hooded Gulls (emend *Kroicocephalus*, Jameson, 1839; *Chroiocephalus*, Reich., *Chrœcocephalus*, Strickl., 1841; *Chroocephalus*, S. & S., 1871). 1838. *Rossia*, Bp., *Comp. List*, p. 62; no descr.; preoccupied. 1842. *Rhodostethia*, Macg., *op. cit.*, pt. ii, p. 251; *L. roseus.* 1842. *Cetosparactes*, Macg,, *tom. cit.*, p. 251; *L. eburneus.* (*Catosparactes*, Gray, *G. of B.*, iii, 1845, p. 655, note.) 1852. *Plautus*, Reich., *Nat. Syst. Vög. Longip.*, p. 5 (after Klein, 1750; out of date). 1853. *Glaucus*, Bruch, *J. f. O.*, p. 101; for large and medium gray-mantled spp. 1853. *Gabianus* "Bp.", Bruch, *J. f. O.*, p. 100; Bp., *Naum.*, 1854, pp. 211, 215; *L. pacificus.* 1854. *Gavina*, Bp., *Naum.*, p. 212; for *L. canus*, etc. 1857. *Gavina*, Bp., *C. A.*, ii, p. 222; *L. audouini* 1853. *Dominicanus*. Bruch, *J. f. O.*, p. 100; for large dark-mantled Gulls. 1853. *Leucophœus* "Bp.", Bruch, *J. f. O.*, p. 108; *L. scoresbii.* 1854. *Leucophœus*, Bp., *Naum.*, p. 211; also includes *L. heermanni.* 1857. *Leucophœus*, Bp., *C. A.*, ii, p. 231; *L. fuliginosus* and *L. belcheri.* 1853. *Blasipus* "Bp.", Bruch, *J. f. O.*, p. 108; *L. modestus.* 1854. *Blasipus*, Bp., *Naum.*, p. 211, includes *crassirostris.* 1853. *Adelarus* "Bp.", Bruch, *J. f. O.*, p. 106; for dark-mantled hooded spp. 1854. *Gelastes*, Bp., *Naum.*, p. 212; for *L. gelastes*, etc. 1854. *Atricilla*, Bp., *Naum.*, p. 212; for *L. atricilla.* 1854. *Creagrus*, Bp., *Naum.*, p. 213; for *L. furcatus.* 1854.

1878. Saunders, H.—Continued.

Gavia, subgg. *Melagavia*, *Cirrhocephala*, Bp., *Naum.*, 1854, pp. 212, 213. (*Cirrhocephalus*, Bruch.) 1857. *Bruchigavia*, Bp., *C. A.*, ii, p. 228: a joke. 1854. *Procellarus* sive *Epitelarus*, Bp., *Naum.*, pp. 211, 213; type *neglectus*=*scoresbii*, juv. (done to "chaff" Cabanis). 1857. *Clupeilarus*, Bp., *C. A.*, ii, p. 220; *L. fuscus*, and so forth.

1878. Sharpe, R. B. On a small Collection of Birds from the Ellice Islands. . . . With a Note on the other Birds found there, by the Rev. S. J. Whitmee. < *P. Z. S.*, Feb. 19, 1878, pp. 271–274.

The collection consists almost entirely of Terns, 5 spp. of which are given, with an *Ardea*. The synonymy of the two Grey Pacific Noddies, alleged to be wrongly given by Saunders (*P. Z. S.*, 1876, p. 671) is worked out, *Anous cinereus* and *Anous cæruleus* being differentiated.

1879. Brewer, T. M. The Black Skimmer [Rhynchops nigra] in Massachusetts. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 243.

1879. Boardman, G. A. Rhynchops nigra in the Bay of Fundy. < *The Oölogist*, v, No. 2, Aug., 1879, pp. 13, 14.

An account of the remarkable flight of these birds, northward from the Middle and Southern States, which occurred this year.

1879. Brewster, W. The Terns [Sterninæ] of the New England Coast. < *Bull. Nutt. Ornith. Club*, iv, No. 1, Jan., 1879, pp. 13–22.

A well-written popular account of habits, &c.

1879. "C. E. P." *and* "R. H." The Black Skimmer [Rhynchops nigra] in New Jersey. < *Forest and Stream*, xiii, Oct. 2, 1879, p. 684.

Note of capture.

1879. Deane, R. The Black Skimmer (Rhynchops nigra) in New England. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 242, 243.

1879. "F. M." The Gull's Flight. < *Science News*, i, No. 15, June 1, 1879, p. 240.

On the mechanics of the case.

1879. Goss, N. S. Bonaparte's Gull [Larus bonapartii] in Kansas. < *Bull. Nutt. Ornith. Club*, iv, No. 3, July, 1879, pp. 190, 191.

1879. Henshaw, H. W. Occurrence of the Caspian Tern (Sterna caspia) upon the Coast of Virginia. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, pp. 243, 244.

1879. Maynard, C. J. The Kittiwake Gull. (Rissa tridactyla.) < *Town and Country* (newspaper of Boston, Mass.) for August, 1879.

Being Chap. VI of his *Wanderings of a Naturalist*.

1879. Richmond, C. A. A Tame Gull [Larus marinus]. < *Forest and Stream*, xii, June 12, 1879, p. 365.

Notice of a specimen kept in captivity for twenty years.

1879. "R. H. R. M." [R. H. Robertson *and* G. B. Grinnell.] Northern Range of the Black Skimmer [Rhynchops nigra]. < *Forest and Stream*, xiii, Nov. 6, 1879, pp. 784, 785.

Notice of capture of this species at Martha's Vineyard, Mass., by Mr. Robertson, in Aug., 1879, with introduction by G. B. Grinnell, noting the occurrence of the species in New England during the same summer.

Procellariidæ.

1674. Lachmund, F. De ave Diomedea [Procellaria æquinoctialis]. Diss. cum vera ejus effigie aeri incisa. Amstelodami. Andr. Fris. 1674. 12mo. pp. 52, pl.

Haud mihi obvius: titulus e Caro et Engelm.

1745. Linnæus, C. Storm-våders-fogelen Beskrifven af Carl Linnæus. < *Kongl. Swensk. Wetens. Acad. Handl.*, vi, 1745, pp. 93–96, pl. vi.

Procellaria pelagica, L., posteà. ("Procellaria est avis Passerini ordinis"!)

1745. Linnæus, C. Beschreibung des Ungewittervogels, Procellaria. < *Abh. d. Schwed. Akad. für* 1745, pp. 93-96, 1 Taf.

This German version of the title taken from Carus and Engelmann.

1759. Martin, A. R. Beskrifning på en Procellaria [glacialis], som finnes vid Norrpolen. < *Kongl. Svensk. Vetens. Acad. Handl.*, xx, 1759, pp. 94–99, pl. iii.

1759. Martin, A. R. Beschreibung einer Procellaria [glacialis] die sich um den Nordpol findet. < *Abhandl. d. Schwed. Acad. für* 1759, pp. 94–98, 1 Taf.

This German version of the original title extracted from Carus and Engelmann.

1765. Gunnerus, J, E. Vom Havhest oder Seepferd, einem Seevogel (Procellaria groenlandica). < *Der Drontheim Gesellsch. Schrift.*, Th. i, 1765, pp. 154–170, pl.

Nicht mir selbst zugänglich: Titel aus Carus & Engelm.

1785. Forster, —. Mémoire sur les Albatros [Diomedea]. < *Mém. de Math. et Phys. prés. à l'Acad.*, x, 1785, pp. 563–572, pll. 3.

Pas vu moi-même: le titre tiré de Carus et Engelmann.

1788. Ödmann, S. Beskrifning på Hofhästen [Procellaria glacialis]. < *Uppfostr.-Sällsk. allm. Tid.*, 1788, D. i., nro. 38.

Not seen.

1820. Kuhl, H. Beiträge zur Kenntniss der Procellarien. < *Beiträge zur Zool. und Vergl. Anat.*, 1820, pp. 135–149, pll. x, xi, figg. 1–13.

This important contribution to our knowledge of the *Procellariidæ* forms one of a very miscellaneous collection of zoological and anatomical papers by Kuhl, and by Hassell and Kuhl, published in a sm. 4to volume in 1820. I cite the whole volume elsewhere; but take this paper out for special notice here under *Procellariidæ*.

The paper on the *Procellariidæ* treats of 28 spp., most of which are described, with synonymy, and the heads of many of which are figured on two folding plates, as follows:

A. Naribus tubo unico coalitis: 1. *P. furcata* L., p. 136, pl.; 2. *P. oceanica* Banks, p. 136, pl. x, f. 1; 3. *P. marina* Lath., p. 137, pl. x, f. 2; 4. *P. leachi* Temm., p. 137; 5. *P. fregatta* Banks, p. 138, pl. x, f. 3; 6. *P. pelagina*, p. 139; 7. *P. glacialis*, p. 139, pl. x, f. 4; 8. *P. capensis*, L., p. 140; 9. *P. gigantea* L., p. 140; *P. aequinoctialis*, p. 141, pl. x, f. 5; 11. *P. hasitata* Forst., p. 142; 12. *P. fuliginosa* (Banks, tab. 19), p. 142, pl. x, f. 6; 13. *P. desolata* (ex definitione), p. 143, pl. xi, f. 7; 14. *P. turtur* Banks, p. 143, pl. xi, f. 8; 15. *P. grisea* L., p. 144, pl. xi, f. 9; 16. *P. coerulea* Forst., p. 145. 17. *P. urinatrix* Forst., p. 145; 18. *P. nivea*, p. 145; 19. *P. antarctica* Forst., p. 145; 20. *P. lugens* Forst., p. 145; 21. *P.* —— (Forst., pl. 20), p. 145.—B. Naribus aperturis duabus separatis, etc.: 22. *P. puffinus*, p. 146, pl. xi, f. 10; 23. *P. anglorum*, p. 146; 24. *P. obscura*, p. 147, pl. xi, f. 11; 25. *P. cinerea* L., p. 148, pl. xi, f. 12; 26. *P. munda* (Banks, tab. 24), p. 148; 27. *P. fuliginosa* (Banks, tab. 23), p. 148.—C. Naribus subbasalibus, discretis, etc.: 28. *P. vittata* Forst., p. 149, pl. xi, f. 13.

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1861. PITTARD, S. R. [Notice of a letter from, containing remarks relative to the flight of Albatrosses (Diomedea) and other oceanic Birds.] <*P. Z. S.*, xxix, 1861, p. 135.

1862. BENNETT, G. [Explanation of his diagram (in "Gatherings of a Naturalist in Australasia") of the flight of the Albatross (Diomedea).] <*Ibis*, iv, 1862, p. 90.

1862. BENNETT, G. [On an albino Ossifraga gigantea.] <*Ibis*, iv, 1862, p. 193.

1862. GOULD, J. [Exhibition and Description of Prion magnirostris sp. n.] <*P. Z. S.*, Apr., 8, 1862, p. 125.

1862. GOULD, J. [On Prion magnirostris.] <*Ann. Mag. Nat. Hist.*, 3d ser., x, 1862, p. 317.

From *P. Z. S.*, Apr. 8, 1862, p. 125.

1862. LAYARD, E. L. Notes on the Sea-birds [chiefly Procellariidæ] observed during a Voyage in the Antarctic Ocean. <*Ibis*, iv, 1862, pp. 97-100.

1862. SAVILLE, S. P. Breeding Habits of the Petrel [not named; Nova Scotia]. <*Zoologist*, xx, 1862, pp. 7940, 7941.

1862. SAXBY, H. L. Occurrence of the Manx Shearwater [Puffinus anglorum] at Sheerness. <*Zoologist*, xx, 1862, p. 8287.

1863. SCHLEGEL, H. Procellariae <*Mus. Hist. Nat. Pays-Bas*, 4e livr., Juillet 1863, pp. 1-40.

The group here treated is equivalent to the family *Procellariidæ* of authors, and the three genera which the author adopts, viz, *Procellaria*, *Diomedea* and *Halodroma*, represent the three subfamilies into which it is divisible. It is represented in the Leyden Museum by 209 specimens, which the author refers to 43 spp. of *Procellaria*, 8 spp. of *Diomedea*, and 3 spp. of *Halodroma*. Two species, *Proc. incerta*, p. 9, and *P. neglecta*, p. 10, are described as new.

1863. SMITH, *Rev.* JAMES. The Fulmar Petrel (Procellaria [Fulmarus] glacialis) near Birmingham. <*Zoologist*, xxi, 1863, p. 8449.

1863. STEVENSON, H. The Forktailed Petrel (Thalassidroma Leachii [Cymochorea leucorrhoa]) in Norfolk. <*Zoologist*, xxi, 1863, p. 8449.

1863. STEVENSON, H. [Occurrence of Cymochorea leucorrhoa at Salthouse, near Cromer, England.] <*Ibis*, v, 1863, pp. 235, 236.

1864? ———. Some account of the Storm Petrel, Sea Serpent, Albicore, &c., as observed at St. Margaret's Bay, Nova Scotia. <*Trans. Nova Scotia Inst.*, i, pt. ii, 1864?, pp. 34-—.

1864. BOULTON, W. W. Manx Shearwater [Puffinus anglorum] Shot at Flamborough. <*Zoologist*, xxii, 1864, pp. 9291, 9292.

1864. BOULTON, W. W. Manx Shearwater [Puffinus anglorum] at Flamborough and Filey. <*Zoologist*, xxii, 1864, pp. 9330, 9331.

1864. BOULTON, W. W. Fulmar Petrel [Fulmarus glacialis] near Flamborough Head. <*Zoologist*, xxii, 1864, p. 9365.

1864. Coues, E. A critical Review of the Family Procellaridæ; Part I., embracing the Procellarieæ, or Stormy Petrels. < *Proc. Acad. Nat. Sci. Phila.*, xvi, 1864, pp. 72–91.

This is the first of a series of five papers in which the whole family *Procellariidæ* are critically reviewed. The Petrels are divided into three subfamilies, *Procellariinæ*, *Diomedeinæ*, and *Halodrominæ*, the first of these into the sections *Procellarieæ*, *Puffineæ*, *Fulmareæ*, *Æstrelateæ*, and *Prioneæ*. Of the mode in which the genera and species are handled it may be remarked that those actually known by specimens to the author are carefully and satisfactorily described, and that the synonymy and criticism presented in such cases is in the main correct; but that the writer is not so fortunate in the instances in which he attempted to supplement his own knowledge by compilation from the writings of others, he having suffered not a little from imprudence in believing Bonaparte. The following 8 genera and 21 species of *Procellarieæ* or "Stormy Petrels" are treated:—

1. *Oceanodroma furcata*. 2. *O. hornbyi*. 3. *Cymochorea* (g. n., p. 73) *leucorrhoa*. 4. *C. melania*. 5. *C. homochroa*, sp. n., p. 77. 6. *Halocyptena* (g. n., p. 78) *microsoma*, sp. n., p. 79. 7. *Procellaria pelagica*. 8? *P. tethys*. 9? *P. lugubris*. 10. *P. melitensis*. 11. *P. nereis*. 12. *P. fasciolata*. 13. *Oceanites oceanica*. 14. *O. lineata*. 15. *O. segethi*. 16. *O. gracilis*. 17. *Fregetta tropica*. 18. *F. grallaria*. 19. *F. melanogastra*. 20. *F. lawrencii*. 21, *Pelagodroma fregata*. The paper concludes with an analytical and diagnostic synopsis of these genera and species. For Part II, see next title; for Parts III–V, see 1866.

1864. Coues, E. A Critical Review of the Family Procellaridæ:—Part II.; Embracing the Puffineæ. < *Proc. Acad. Nat. Sci. Phila.*, xvi, 1864, pp. 116–144.

For Part I, see last title; for Parts III–V, see 1866. The "Shearwaters" are treated in this paper, under 5 genera and 21 spp., as follows:—

1. *Majaqueus æquinoctialis*. 2, *M. conspicillatus*. 3. *Adamastor cinereus*. 4. *A. gelidus*. 5. *A. sericeus*. 6. *Thiellus sphenurus*. 7. *T. chlororhynchus*. 8. *Nectris fuliginosus*. 9. *N. amaurosoma*, sp. n., p. 124. 10. *N. carneipes*. 11. *N. tenuirostris*. 12. *N. brevicaudus*. 13. *Puffinus kuhlii*. 14. *P. leucomelas*. 15. *P. creatopus* Cooper, MS., sp. n., p. 131. 16. *P. major*. 17. *P. anglorum*. 18. *P. yelcuanus*. 19. *P. obscurus*. 20. *P. opisthomelas*, sp. n., p. 139. 21. *P. nugax*.

1864. Meyer, R. Verschlagene Sturmvögel [Thalassidroma sp.]. < *Zool. Gart.*, v, 1864, pp. 24–26.

1864. Jeittelles, L. H. [Verschlagene Sturmvögel.] < *Zool. Gart.*, v, 1864, p. 88.

1864. Radcliffe, C. D. Wilson's Petrel [Oceanites oceanicus] in the Isle of Wight. < *Zoologist*, xxii, 1864, p. 8892.

1865. Gurney, J. H. Leach's Stormy Petrel [Cymochorea leucorrhoa] at Worthing. < *Zoologist*, xxiii, 1865, p. 9419.

1866. Andersson, C. J. [On the mode of alimentation of Young Diomedeæ; cf. Ibis, 1865, p. 279, seq.] < *Ibis*, 2d ser., ii, 1866, p. 324.

1866. Blackmore, H. Forktailed Petrel [Cymochorea leucorrhoa] near Salisbury. < *Zoologist*, 2d ser., i, 1866, p. 101.

1866. Brooking-Rowe, J. Forktailed Petrel [Cymochorea leucorrhoa] at Plymouth. < *Zoologist*, 2d ser., i, 1866, p. 102.

1866. Carte, A. On an Undescribed Species of Petrel [Pterodroma caribbea] from the Blue Mountains of Jamaica. < *P. Z. S.*, xxxiv, 1866, pp. 93–95, pl. x.

This is the Blue-Mountain Duck of Gosse, *B. Jam.*, p. 437, now first described and named.

1866. Coues, E. A Critical Review of the Family Procellariidæ:—Part III; embracing the Fulmareæ. < *Proc. Acad. Nat. Sci. Phila.*, xviii, 1866, pp. 25–33.

For Parts I and II see 1864. This 3d part treats of the 3 genera *Fulmarus*, *Thalassoica*, and *Ossifraga*, of which are given the following species: *F. glacialis*, *F. pacificus*, *F. rodgersi*, *Th. glacialoides*, *Th. antarctica*, and *O. gigantea*.

1866. Coues, E. Critical Review of the Family Procellariidæ:—Part IV; Embracing the Æstrelateæ and Prioneæ. < *Proc. Acad. Nat. Sci. Phila.*, xviii, 1866, pp. 134–172.

For Parts I, II, see 1864; for Parts III and V, see preceding and following titles.

This Part opens with a criticism of Bonaparte, whom the writer seems to have just begun to find out, and continues with a discussion of 20 spp. of 3 genn. of *Œstrelateæ*, and 5 spp. of 2 genn. of *Prioneæ*; concluding with an analytical diagnostic synopsis of these two groups.

The genus *Œstrelata* (οιςτρήλατος) is misspelled *Æstrelata*, as was the fashion then.

1866. COUES, E.—Continued.

I. ŒSTRELATEÆ.—1. *Æstrelata hæsitata.* 2. *Æ. lessoni.* 3. *Æ. rostrata.* 4. *Æ. parvirostris.* 5. *Æ. incerta.* 6. *Æ. neglecta.* 7. *Æ. solandri.* 8. *Æ. grisea.* 9. *Æ. mollis.* 10. *Æ. cookii.* 11. *Æ. gavia.* 12. *Æ. desolata.* 13. *Æ. macroptera.* 14. *Æ. fuliginosa.* 15. *Æ. aterrima.* 16. *Æ. bulweri.* 17. *Æ. macgillivrayi.* 18. *Æ. carribæi.* 19. *Pagodroma nivea.* 20. *Daption capensis.*

II. PRIONEÆ.—1. *Halobæna cærulea.* 2. *Pseudoprion* (g. n., p. 164) *banksii.* 3. *Ps. turtur.* 4. *Ps. ariel.* 5. *Prion vittatus.*

1866. COUES, E. Critical Review of the Family Procellariidæ;—Part V; embracing the Diomedeinæ and the Halodrominæ. With a General Supplement. < *Proc. Acad. Nat. Sci. Phila.*, xviii, 1866, pp. 172–197.

For Parts III, IV, see preceding titles; for Parts I, II, see 1864.

This concluding paper of the series presents 12 spp. of Albatrosses under 2 genera, and 3 spp. of *Halodrominæ*, as follows:

I. DIOMEDEINÆ.—1. *Diomedea exulans.* 2. *D. brachyura.* 3. *D. leptorhyncha*, sp. n., p. 178. 4. *D. nigripes.* 5. *D. gibbosa.* 6. *D. melanophrys.* 7. *D. gilliana*, sp. n., p. 181. 8. *D. cauta.* 9. *D. culminata.* 10. *D. chlororhyncha.* 11. *D. olivaceirostris.* 12. *Phœbetria fuliginosa.*

II. HALODROMINÆ.—1. *Pelecanoides garnoti.* 2. *P. urinatrix.* 3. *P. berardii.*

The general supplement gives some additions to, and corrections of, all the five papers, and a bibliographical appendix identifies the Petrels treated by Linnæus, Gmelin, Latham, Vieillot, Kuhl, Stephens, and Forster.

A recapitulation of the genera and species treated in all five papers gives the following result:

Subfamilies and sections.	Genera.	Species.	Doubtful species.
Procellariinæ;			
Fulmareæ	3	6	....
Œstrelateæ	3	23	6
Prioneæ	3	6	1
Procellarieæ	7	21	5
Puffineæ	5	21	1
Diomedeinæ	2	12	2
Halodrominæ	1	3	2
Total	24	92	17

1866. DOUBLEDAY, H. Shearwater [Puffinus anglorum] at Epping. < *Zoologist*, 2d ser., i, 1866, p. 526.

1866. GOULD, J. Habits of the Shorttailed Petrel (Nectris brevicaudus). < *Zoologist*, 2d ser., i, 1866, pp. 208–211.

Extracted from Gould's Handbook of the Birds of Australia,' ii, p. 464.

1866. GUISE, M. V. Forktailed Petrel [Cymochorea leucorrhoa] at Elmore. < *Zoologist*, 2d ser., i, 1866, p. 229.

1866. LOWNE, B. T. Notes on a Voyage round the World. < *Zoologist*, 2d ser., i, 1866, pp. 114–118.

Cursory remarks on a few *Procellariidæ.*

1866. RODD, E. H. Forktailed Petrel [Cymochorea leucorrhoa] at Penzance. < *Zoologist*, 2d ser., i, 1866, pp. 101, 102.

1866. SAUNDERS, H. [Letter relating to various Procellariidæ.] < *Ibis*, 2d ser., ii, 1866, pp. 124–126.

1866. SMEE, A. H. Leach's Petrel [Cymochorea leucorrhoa] at Shoreham. < *Zoologist*, 2d ser., i, 1866, p. 190.

1867. BUXTON, T. F. Storm Petrel [Procellaria pelagica] at Cromer. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. GUNN, T. E. Storm Petrel [Procellaria pelagica] in Norfolk. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. Hutton, F. W. Notes on the Birds seen during a Voyage from London to New Zealand in 1866. < *Ibis*, 2d ser., iii, 1867, pp. 185–193.

About 20 species (all but one belonging to *Procellariidæ*) are noticed.

1867. Moor, E. C. Storm Petrel [Procellaria pelagica] at Aldeborough. < *Zoologist*, 2d ser., ii, 1867, p. 992.

1867. Overend, J. G. Forktailed Petrel [Cymochorea leucorrhoa] at Yarmouth. < *Zoologist*, 2d ser., ii, 1867, p. 916.

1868. Blake-Knox, H. Leach's Petrel [Cymochorea leucorrhoa] in Dublin Bay. < *Zoologist*, 2d ser., iii, 1868, p. 1424.

1868. Bree, C. R. Forktailed Petrel [Cymochorea leucorrhoa] at Colchester. < *Zoologist*, 2d ser., iii, 1868, pp. 1060, 1061.

1868. Clark-Kennedy, A. Storm Petrel [Procellaria pelagica] at Bridlington Quay. < *Zoologist*, 2d ser., iii, 1868, p. 1060.

1868. Clark-Kennedy, A. Storm Petrel [Procellaria pelagica] in Yorkshire. < *Zoologist*, 2d ser., iii, 1868, p. 1135.

1868. Clark-Kennedy, A. Storm Petrel [Procellaria pelagica] in Buckinghamshire. < *Zoologist*, 2d ser., iii, 1868, pp. 1178, 1179.

1868. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] at Flamborough. < *Zoologist*, 2d ser., iii, 1868, pp. 1461, 1462.

1868. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] near Sutherland. < *Zoologist*, 2d ser., iii, 1868, p. 1462.

1868. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] near Filey. < *Zoologist*, 2d ser., iii, 1868, p. 1483.

1868. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] at Flamborough. < *Zoologist*, 2d ser., iii, 1868, p. 1483.

1868. Harrison, J. W. Forktailed Petrel [Cymochorea leucorrhoa] near Spalding. < *Zoologist*, 2d ser., iii, 1868, p. 1061.

1868. Stevenson, H. Five Forktailed Petrels [Cymochorea leucorrhoa] near Lynn, Norfolk. < *Zoologist*, 2d ser., iii, 1868, p. 1099.

1869. Giglioli, H. H., *and* Salvadori, T. Nuove specie di Procellaridi raccolte durante il viaggio fatto intorno al mondo negli anni 1865. 6. 7. 8. dalla pirocorvetta italiana Magenta. < *Atti della Soc. Ital. Sci. Nat.*, xi, fasc. iii, Sept. 16, 1868, pp. 450–458. (Not pub. till 1869.)

Not seen. This is the ostensible original of the paper, but it is said not to have appeared until after the English version in the *Ibis*, 1869, pp. 61–68, which see for the new species.

1869. Giglioli, H. H., *and* Salvadori, T. On some new Procellariidæ collected during a Voyage round the World in 1865–68 by H. I. M.'s S. 'Magenta'. < *Ibis*, 2d ser., v, 1869, pp. 61–68.

This is an English version of the paper in *Atti Soc. Ital. Sci. Nat.*, xi, fasc. iii, "16 Sept. 1868"; said to have actually appeared before the ostensible original in Italian. Five species are named and described as new: *Æstrelata magentæ*, p. 61; *Æ. arminjoniana*, p. 62; *Æ. defilippiana*, p. 63; *Æ. trinitatis*, p. 65; and *Puffinus elegans*, p. 67, from the S. Atlantic, lat. 43°, long. 9° E. The descriptions are complemented with critical observations.

1869. Gurney, J. H., Jr. Fulmar Petrels [Fulmarus glacialis] at Scarborough. < *Zoologist*, 2d ser., iv, 1869, p. 1518.

1869. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] at Whitby. < *Zoologist*, 2d ser., iv, 1869, pp. 1518, 1519.

1869. Gurney, J. H., Jr. Food of the Fulmar [Fulmarus glacialis]. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1869. Gurney, J. H., Jr. Fulmar Petrel [Fulmarus glacialis] at Saltburn. < *Zoologist*, 2d ser., ii, 1869, p. 1868.

1869. HUTTON, F. W. On the Mechanical Principles involved in the Flight of the Albatross. < *Trans. and Proc. N. Z. Inst. for* 1868, i, 1869, (2d ed., 1875), pp. 465–467.

Abstract only here; paper deferred for want of algebraic type to second vol. of the same publication, 1870, pp. 227–232, where in full.

1869. HUTTON, F. W. On the Mechanical Principles involved in the Sailing-Flight of the Albatros. < *Philos. Mag.*, Aug., 1869, pp. 130–136.

Not seen. Cf. *Ibis*, 1870, p. 122; *Zool. Rec.*, iv, pp. 45, 46, 50.

1869. HUTTON, F. W. [Letter relating to certain Procellariidæ.] < *Ibis*, 2d ser., v, 1869, pp. 351–353.

Æstrelata gouldi, sp. n., p. —. Description of *Majaqueus parkinsoni*, Gray. Criticism of E. Coues's review of the *Procellariidæ* in *Proc. Phila. Acad.*, 1864–66.

1870. GUNN, T. E. Abundance of the Storm Petrel [Procellaria pelagica] in Norfolk. < *Zoologist*, 2d ser., v, 1870, p. 1983.

1870. GUNN, T. E. Fulmar Petrel [Fulmarus glacialis] on the Norfolk Coast. < *Zoologist*, 2d ser., v, 1870, p. 1983.

1870. HUTTON, F. W. Description of two Birds [Procellariidæ] new to the Fauna of New Zealand. < *Trans. N. Z. Inst.*, ii, 1870, pp. 78–80.

Not seen.

1870. HUTTON, F. W. On the Mechanical Principles involved in the Flight of the Albatros. < *Trans. and Proc. New Zealand Inst. for* 1869, ii, 1870, pp. 227–232.

In full; abstract in *op. cit.*, vol. i, 1869, pp. 465–467. Also pub. in *Philos. Mag.*, Aug., 1869, pp. 130–136. Read before Auckland Inst. June 1, 1868.—A notable paper, which occasioned considerable comment and criticism. Cf. *Ibis*, 1870, p. 122; *Zool. Rec.*, iv, pp. 45, 46, 50.

1870. WEBB, J. S. On the Mechanical Principles involved in the Sailing Flight of the Albatros. < *Trans. and Proc. New Zealand Inst. for* 1869, ii, 1870, pp. 233–236, with 1 diagram.

It seems to the author, who commends Capt. Hutton's "ably written and very interesting paper," that the latter has "not been happy in the mathematical treatment of the subject," "having made a mistake at the outset of his calculations."

1871. ANON. Albatross in Derbyshire. < *Zoologist*, 2d ser., vi, 1871, p. 2527.

From the London 'Field', Nov. 26.

1871. GURNEY, J. H. Forktailed Petrel [Cymochorea leucorrhoa] in South Devon. < *Zoologist*, 2d ser., vi, 1871, p. 2443.

1871. GURNEY, J. H. Albatross in Derbyshire. < *Zoologist*, 2d ser., vi, 1871, p. 2563.

1871. GURNEY, J. H., JR. Wholesale Destruction of Manx Shearwaters [Puffinus anglorum]. < *Zoologist*, 2d ser., vi, 1871, p. 2646.

1871. HERBERT, W. H. Storm Petrel [Procellaria pelagica] near Wantage. < *Zoologist*, 2d ser., vi, 1871, p. 2563.

1871. ROWLEY, G. D. Forkedtailed Petrel [Cymochorea leucorrhoa] at Brighton. < *Zoologist*, 2d ser., vi, 1871, p. 2443.

1871. WEST, C. Albatross in Derbyshire. < *Zoologist*, 2d ser., vi, 1871, p. 2527.

From the London 'Field,' Dec. 4, 1870.

1872. HUTTON, F. W. On the Sailing Flight of the Albatros; a Reply to Mr. J. S. Webb. < *Trans. and Proc. New Zealand Inst. for* 1871, iv, 1872, pp. 347–350.

For Webb's article, see *op. cit.* for 1869, ii, 1870, pp. 233–236. For Hutton's previous papers, see *op. cit.*, i, pp. 465–467; ii, pp. 227–232; *Philos. Mag.*, Aug., 1869, pp. 130–136. Cf. *Ibis*, 1870, p. 122; *Zool. Rec.*, iv, pp. 45, 46, 50.

1872. HUTTON, F. W. [On the synonymy of certain Procellariidæ, &c.] < *Ibis*, 3d ser., ii, 1872, pp. 83, 84.

1872. SPERLING, R. M. [Letter on certain Procellariidæ, and various South American Birds.] < *Ibis*, 3d ser., ii, 1872, pp. 74–79.

1873. ANON. Mother Carey's Chickens. < *Am. Sportsman*, iii, 1873, p. 183.

Account of *Procellaria pelagica*, "from English magazine."

1873. Potts, T. H. Notes on a supposed new Species of Prion [australis]. < *Ibis*, 3d ser., iii, 1873, pp. 85, 86.

1873. Swinhoe, R. On a Black Albatross [Diomedea derogata, sp. n.] of the China Seas. < *P. Z. S.*, 1873, pp. 784–786.

1874. Anon. [Capture of Fulmars (Fulmarus glacialis) at St. Kilda.] < *Am. Sportsman*, iv, 1874, p. 19.

1874. Benner, F. Our Petrels. < *Forest and Stream*, ii, Apr. 9, 1874, p. 133.

Nesting habits of three species on the coast of Maine.

1874. Gatcombe, J. Greater Shearwater [Puffinus major] on the Coasts of Devon and Cornwall. < *Zoologist*, 2d ser., ix, 1874, p. 4262.

1874. Gurney, J. H. Note on the Occurrence of the Greater Shearwater [Puffinus major] in Bridlington Bay. < *Zoologist*, 2d ser., ix, 1874, pp. 3882, 3883.

1874? Reinhardt, J. Sur la structure anatomique des ailes dans la famille des Pétrels (Procellaridæ, s. Tubinares). < *Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn for aaret* 1873, 1874? pp. 38–41.

Résumé français.

1874? Reinhardt, J. Om Vingens anatomiske Bygning hos Stormfugle-Familien (Procellaridæ s. Tubinares). < *Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn for aaret* 1873, 1874? pp. 123–138, figg. in text.

The actual date of the paper is in question; but it probably appeared in 1873.

The wing-structure of *Procellariidæ* is treated with reference to the presence of one or two ossicles at the elbow-joint, developed in connection with the apophysial hooklet of the humerus, and the origin of the extensor metacarpi longus and extensor plicæ alaris. These ossicles are found in 6 genera and not in 8, but the 6 are enough richer in species to indicate that they occur in about two-thirds of the species of the family. Being peculiar to *Procellariidæ*, it is proposed to divide the group primarily upon this character.

Cf. Coues, *Am. Nat.*, viii, 1874, p. 546; *Zool. Rec.*, x, pp. 71, 72.

1874. Reinhardt, J. Sur la Structure anatomique des ailes dans la famille des Pétrels (Procellaridæ seu Tubinares). < *Gerv. Journ. de Zool.*, iii, 1874, pp. 139–144, figg. 2.

Résumé fait par l'auteur de son Mémoire inséré dans le *Vidensk. Meddel. Foren. Kjøb.* 1873, pp. 123–128.

1874. Rodd, E. H. Greater Shearwater [Puffinus major] on the Cornish Coast. < *Zoologist*, 2d ser., ix, 1874, pp. 4261, 4262.

1875. Buller, W. L. Description of a new Species of Petrel (Procellaria affinis). < *Trans. and Proc. New Zealand Inst. for* 1874, vii, 1875, p. 215, 216.

Compared with *P. cookii.*

1875. Gatcombe, J. Large Number of the Greater Shearwater [Puffinus major] off the Coasts of Devon and Cornwall. < *Zoologist*, 2d ser., x, Jan., 1875, p. 4300.

1875. Rodd, E. H. Fulmar Petrel [Fulmarus glacialis] in Mount's Bay. < *Zoologist*, 2d ser., x, May, 1875, pp. 4459, 4460.

1875. Salvin, O. Critical Notes on Procellariidæ. < *Rowl. Ornith. Misc.*, pt. iv, May, 1876, pp. 223–238, 249–257, pll. xxx–xxxiv.

A specially important and trustworthy paper, clearing up many obscure moot points in this difficult group. It consists of two separately titled and paged parts. Part I: Banks's unpublished Drawings. This is an attempt to identify these drawings, which figure so prominently in the literature of *Procellariidæ*, yet are really little understood, and accessible to few. The 16 spp. drawn by Parkinson, being Nos. 12–27, are nearly all satisfactorily accounted for. Part II is: *The new species of Petrels obtained during the Voyage of the Italian Corvette 'Magenta' round the World.* These are described, and all are figured in colors, as follows: Pl. xxx, *Œstralata magentæ*, p. 251; Pl. xxxi, *Œ. arminjoniana*, p. 252; Pl. xxxii, *Œ. trinitatis*, p. 253; Pl. xxxiii, *Œ. defilippiana*, p. 255; Pl. xxxiv, *Puffinus elegans*, p. 256.

1876. Cordeaux, J. Manx Shearwater (Puffinus anglorum, Temminck) on the North-East Coast. < *Zoologist*, 2d ser., xi, Dec., 1876, p. 5169.

1876. Gatcombe, J. Greater Shearwater [Puffinus major] in Devon. < *Zoologist*, 2d ser., xi, Oct., 1876, p. 5127.

1876. GURNEY, J. H., JR. Fulmar Petrel [Fulmarus glacialis] of Martin. < *Zoologist*, 2d ser., xi, May, 1876, p. 4931.

The picture in 'Voy. St. Kilda,' 1698, was drawn by James Monroe: cf. Edwards, *Nat. Hist.*, p. 289.

1876. GURNEY, J. H., JR. Yellow-nosed Albatross [Diomedea chlororhyncha] in Derbyshire. < *Zoologist*, 2d ser., xi, Apr., 1876, pp. 4883, 4884.

With quotation from the *Analyst*, vi, Apr., 1837, p. 160, as copied in Wood's *Naturalist*, ii, p. 104 and p. 294.

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Podicipedidæ.

[N. B.—Hujusce familiæ nomen "*Podicipedidæ*" nec *Podicipidæ* rite scribendum, generis nomino a podice et pede derivato; unde *Podicipes*, scilicet "rump-foot."]

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Characteren på detta Slägte, p. 301.—1. *P. cristatus.* 2. *P. rubricollis.* 3. *P. auritus.* 4. *P. cornutus.* 5. *P. obscurus.* 6. *P. minor.*

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1844. ATKINSON, J. C. Notes on the Dabchick [habits of Tachybaptes minor]. < *Zoologist*, ii, 1844, pp. 499-502.

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1850. SUNDEVALL, C. J. Podiceps arcticus, cornutus, auritus. < *Öfvers. Kongl. Vetensk.-Akad. Förhandl. för år* 1849, 1850, pp. 206–210.

P. auritus L. = *P. cornutus* Lath. + *P. arcticus*. *P. nigricollis*, n. sp. = *P. auritus* auct. Cf. *Vet.-Akad. Arsb. i Zool.*, 1845–50, p. 299; *Arch. f. Naturg.*, xvi, 1850, p. 44.

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Aus *Öfv. K. Vet.-Akad. Förh.*, aus d. Jahr 1849, SS. 206–210, *q. v.*

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1851. IRBY, L. H. Occurrence of the Red-necked Grebe (Podiceps rubricollis) in Devonshire. < *Zoologist*, ix, 1851, p. 3035.

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1851. STRANGEWAYES, R. Occurrence of the Eared Grebe (Podiceps auritus) at Yarmouth. < *Zoologist*, ix, 1851, p. 3117.

1851. STRANGEWAYES, R. The Great Crested Grebe (Podiceps cristatus) in Norfolk. < *Zoologist*, ix, 1851, p. 3209.

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1854. GLOGER, C. W. L. Der Schwanz der Steissfüsse [u. s. w.]. *J. f. O.*, ii, 1854, p. 480.

An extract from Audubon's *Ornith. Biogr.*, iii, p. 598, on the structure of the tail of *Podiceps cristatus.*

1855. DAVIS, R. [On the breeding of Podiceps auritus in Ireland.] < *Nat. Hist. Rev.*, ii, 1855, p. 20.

1856. D'URBAN, W. S. M. Occurrence of the Sclavonian Grebe (Podiceps cornutus) in Devonshire. < *Zoologist*, xiv, 1856, p. 5065.

1856. WALKER, A. O. Occurrence of the Eared Grebe [Podiceps auritus] in Flintshire. < *Zoologist*, xiv, 1856, p. 5321.

1857. CLERMONT, *Lord.* On the occurrence of the Eared Grebe [Podiceps auritus, in Ireland]. < *Nat. Hist. Rev.* (*Pr. Soc.*), iv, 1857, p. 72.

1857. SCHLÜTER, W. Schwarze Eier von Podiceps cristatus. < *J. f. O.*, v, 1857, pp. 302, 303.

1862. COUES, E. Synopsis of the North American Forms of the Colymbidæ and Podicipidæ. < *Proc. Acad. Nat. Sci. Phila.*, xiv, 1862, pp. 226–233.

Abstract of a monograph, published in 1874 in the author's 'Birds of the Northwest,' *q. v.* The Grebes are considered as a family apart from *Colymbidæ*, with two subfamilies, *Podi-*

1862. COUES, E.—Continued.

cipinæ and *Podilymbinæ*, and the following North American genera and species:—*Æchmophorus* (g. n., p. 229) *occidentalis; Æ. clarkii; Podiceps cristatus; P. cooperi; P. (Dytes) cornutus; P. (Proctopus) californicus; P. (Pedetaithya) holbölli; Sylbeocyclus dominicus; Podilymbus podiceps.* Cf. *Ibis*, 1863, pp. 107, 108.

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Breeding plumage of *Æchmophorus clarkii*, not before known.

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1862. STEVENSON, H. Occurrence of the Sclavonian and Eared Grebes [Podiceps cornutus, P. auritus] in Norfolk in full Summer Plumage. < *Zoologist*, xx, 1862, pp. 8092, 8093.

1864. BLACKMORE, H. Sclavonian or Dusky Grebe [Podiceps cornutus] near Salisbury. < *Zoologist*, xxii, 1864, p. 9048.

1864. BOULTON, W. W. Sclavonian or Dusky Grebe [Podiceps cornutus] near Beverley. < *Zoologist*, xxii, 1864, p. 8891.

1864. BOULTON, W. W. Eared Grebe [Podiceps auritus] on the Humber, near Hull. < *Zoologist*, xxii, 1864, p. 9048.

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1865. CORDEAUX, J. Rednecked Grebe [Podiceps griseigena] in Lincolnshire. < *Zoologist*, xxiii, 1865, p. 9469.

1865. DEVIS, C. W. Note on the Great Crested Grebe [Podiceps cristatus]. < *Zoologist*, xxiii, 1865, pp. 9565, 9566.

1865. GURNEY, J. H. Sclavonian Grebe [Podiceps cornutus] at Worthing. < *Zoologist*, xxiii, 1865, pp. 9540, 9541.

1865. HODGSON, C. B. Sclavonian Grebe [Podiceps cornutus] at Fern Island, Northumberland. < *Zoologist*, xxiii, 1865, p. 9500.

1865. HODGSON, C. B. Great Crested Grebe [Podiceps cristatus] in Warwickshire. < *Zoologist*, xxiii, 1865, p. 9565.

1865. HODGSON, C. B. Note on the Rednecked Grebe [Podiceps griseigena, in England]. < *Zoologist*, xxiii, 1865, p. 9565.

1865. HORSFALL, W. C. Rednecked Grebe [Podiceps griseigena] near Leeds. < *Zoologist*, xxiii, 1865, p. 9500.

1865. MATHEW, G. F. Eared Grebe [Podiceps auritus] near Barnstaple. < *Zoologist*, xxiii, 1865, pp. 9618, 9619.

1865. MORRES, A. P. Sclavonian Grebe [Podiceps cornutus] near Salisbury. < *Zoologist*, xxiii, 1865, p. 9565.

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1866. JEPHCOTT, T., JR. Great Crested Grebe [Podiceps cristatus] near Birmingham. < *Zoologist*, 2d ser., i, 1866, p. 100.

1867. BRIGGS, J. J. Little Grebe [Podiceps minor] affected by the Cold. < *Zoologist*, 2d ser., ii, 1867, pp. 636, 637.

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1868. Hedderly, J. S. Rednecked Grebe [Podiceps griseigena] near Nottingham. < *Zoologist*, 2d ser., iii, 1868, p. 1060.

1868. Stephenson, J. W. Abundance of the Little Grebe [Podiceps minor] in Sussex. < *Zoologist*, 2d ser., iii, 1868, p. 1482.

1869. Gurney, J. H., Jr. Great Crested Grebe [Podiceps cristatus] at Hempstead. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1869. Skinner, A. Sclavonian Grebe [Podiceps cornutus] near Faversham. < *Zoologist*, 2d ser., iv, 1869, p. 1563.

1869. Southwell, T. Note on the Nest of Podiceps minor. < *Zoologist*, 2d ser., iv, 1869, pp. 1803, 1804.

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1870. Chalk, W. J. Rednecked Grebe [Podiceps griseigena] in Bedfordshire. < *Zoologist*, 2d ser., v, 1870, p. 2064.

1870. Chalk, W. J. Sclavonian Grebe [Podiceps cornutus] at Taunton. < *Zoologist*, 2d ser., v, 1870, p. 2106.

1870. Crewe, H. H. Great Crested Grebe [Podiceps cristatus] feeding its Adult Young. < *Zoologist*, 2d ser., v, 1870, p. 2386.

1870. Gatcombe, J. Rare Grebes in Devonshire. < *Zoologist*, 2d ser., v, 1870, p. 2106.

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1870. Goebel, H. Ueber Podiceps Widhalmi nov. spec. < *J. f. O.*, xviii, 1870, pp. 312–315.

Nachtrag von E. F. von Homeyer, p. 315.

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1870. Rodd, E. H. Horned Grebe [Podiceps cornutus] in Cornwall. < *Zoologist*, 2d ser., v, 1870, p. 2142.

1870. Smee, A. H. Sclavonian Grebe [Podiceps cornutus] on the Wandle. < *Zoologist*, 2d ser., v, 1870, p. 2106.

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1873. Thurn, E. F. Im. Sea Woodcock [Podiceps minor]. < *Zoologist*, 2d ser., viii, 1873, pp. 3371, 3372.

1874. Cane, T. Great Crested Grebe [Podiceps cristatus] at Luton. < *Zoologist*, 2d ser., ix, 1874, p. 3836.

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Alcidæ.

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Nicht mir selbst zugänglich—Titel aus Carus und Engelmann.

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Also, *Sylvia cariceti*, sp. n., p. 785.

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1827. Faber, F. Beyträge zur arctischen Zoologie. <*Oken's Isis*, Bd. xx, 1827, pp. 633–685.

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Aus *Bull. Sci. Acad. St.-Pétersb.*, i, 1837, Nr. 24.

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A. Geirfuglens Ophold ved den vestlige Side af Atlanterhavet: ved de nordlige Dele af Nordamerikas Östkyst. 1. Geirfuglen ved Grönlands Kyster. 2. Geirfuglen i St. Lawrencebugten, ved Newfoundland, o. s. v., pp. 44–71. B. Geirfuglens Forekomst ved Udöerne i den Östlige Del af Atlanterhavet. 1. Geirfuglen ved Islands Kyster. 2. Gierfuglen ved Færöerne. 3. Geirfuglen ved de vestligste Skotske Smaaöer. 4. Geirfuglens Forekomst ved Norges Kyster. C. Summen af de enkelte Undersögelser om Geirfuglens Udbredning, 1) Geirfuglen har aldrig været en egentlig arkisk Fugl, o. s. v., 2)–9). D. Benævnelsen ,, Pengwins " Be-

1856–57. **Steenstrup, J.** [J. S.]—Continued.

tydning, Oprindelse og Historie. E. Om Geirfuglens Stilling till sine nærmeste Beslægtede. —Oplysning om Kaartet og Tavlen.—Tillægsanmærkning.

Gyralca, g. n., p. 114.

This celebrated article is also published separately, 1 vol., 8vo., Kjöbenhavn, 1857. There are two German versions: one in *Gelehrten Anzeigen der k. Bayerischen Akad.*, 1860, pp. ———; the other in *Bull. Acad. Imp. Sci. St.-Pétersb.*, vi, 1863, pp. 513–576, reprinted in *Mélanges Biol. Acad. Imp. Sci. St.-Pétersb.*, iv, 4^{e} livr., 1864, pp. 399–490, by K. E. von Baer. There is also a French translation in *Bull. Soc. Ornith. Suisse*, ii, 1^{e} pte., 1868, pp. 5–70. Cf. *Ibis*, 1865, p. 228; 1868, p. 342; *Zool. Rec.*, v, pp. 111, 112.

1857. **Briggs, J. J.** The Little Auk (Uria [Mergulus] alle). < *Zoologist*, xv, 1857, p. 5365.

1857. **Morris, F. O.** On the specific distinction of the Bridled Guillemot (Uria [ringvia] lachrymans, Temminck). < *Nat. Hist. Rev.*, (*Pr. Soc.*), iv, 1857, pp. 253–256.

1857. **Rodd, E. H.** Occurrence of the Bridled or Ringed Guillemot [Uria ringvia] near Penzance. < *Zoologist*, xv, 1857, p. 5596.

1857. **Stevenson, H.** Note on the Little Auk (Uria [Mergulus] alle) appearing on the Norfolk Coast in Summer. < *Zoologist*, xv, 1857, p. 5758.

1857. **Steenstrup, J. J. S.** Et Bidrag | til | Geirfuglens Naturhistorie | og særligt til Kundskaben om dens tidligere | Udbredningskreds | af | J. Jap. Sm. Steenstrup. | — | Med Kaart og en Tavle. | — | Kjöbenhavn. | Trykt i Bianca Bogtrykkeri ved F. S. Muhle. | 1857. 1 vol. 8vo. 2 p. ll., pp. 1–84, 1 map, 1 pl.

Separate, with new title and table of contents, from *Naturh. Foren. Vidensk. Meddelelser for Aaret* 1855, Nos. 3–7, 1856–57, pp. 33–116.

Inhold: Indledning, p. 1. A. Geirfuglens Ophold ved den vestlige Side af Atlanterhavet o: ved de nordlige Dele af Nordamerikas Östkyst, p. 5. 1. Ved Grönlands Kyster, p. 6. 2. I St. Lawrencebugten, ved Newfoundland o. s. v., p. 12. B. Geirfuglens Forekomst ved Udöerne i den Östlige Del af Atlanterhavet, p. 39. 1. Ved Islands Kyster, p. 39. 2. Ved Færöerne, p. 51. 3. Ved de vestlige Skotske Smaaöer, p. 54. 4. Ved Norges Kyster, p. 59. C. Summen af de enkelte Undersögelser over Geirfuglens Udbredning, p. 63. D. Benævnelsen „Pengwins" Betydning, Oprindelse og Historie, p. 66. E. Om Geirfuglens Stilling til sine nærmeste Beslægtede, p. 76. Oplysning om Kaartet og Tavlen, p. 82. Tillægsanmærkning, p. 83.

Pl., ossa *Tetraonis urogalli* L. et *Alcæ impennis* L. varia inter Mytilos, Cardia, Ostreas, cetorasqve reliqvias cœnarum aboriginum Daniæ inventa. (*Oversigt. Kongl. Vidensk. Selsks. Förh.*, 1855.)

1858. **Morris, F. O.** On the Specific Distinctions of Uria troile and Uria lachrymans [ringvia]. < *Rep. Brit. Assoc. Adv. Sci. for* 1857, 1858, (*Misc. Comm.*), p. 105.

1859? **Charlton, E.** On the Great Auk [Alca impennis]. < *Trans. Tyneside Nat. Field Club*, iv, 1859 (?), pp. 113 seq.

Not seen.—Reprinted in *Zoologist*, 1860, pp. 6883–6888. Contains extracts from Faber's paper, *Isis*, 1827, p. 633.

1860. **Bryant, H.** [Notice of the Breeding of Uria brünnichii, and Uria marmorata on Gannet rock, Gulf of St. Lawrence.] < *Proc. Bost. Soc. Nat. Hist.*, vii, 1860, p. 349.

Uria "marmorata" should read *U. lachrymans* or *ringvia*.

1860. **Charlton, E.** On the Great Auk (Alca impennis). < *Zoologist*, xviii, 1860, pp. 6883–6888.

Historical notes, reprinted from the *Trans. Tyneside Nat. Hist. Soc.*, iv, 1859? p. 113 *seq.*

1860. **Dunn, J.** Occurrence of the Little Auk [Mergulus alle] in Orkney. < *Zoologist*, xviii, 1860, pp. 6812, 6813.

1860. **Gloger, C. W. L.** Die frühere ausserordentliche Häufigkeit der grossen oder Schwimm-Alke, (Alca impennis L., Mataeoptera impennis Glog.) Nach. S. Nilsson. < *J. f. O.*, viii, 1860, pp. 60–63.

Skand. Fn. Fogl., ii, SS. 367–372.

1860. Hellmann, —. Notizen über Alca impennis und Podiceps rubricollis. < *J. f. O.*, viii, 1860, pp. 206, 207.

Account of a specimen of *A. impennis.*

1860. M'Clintock, F. J. The Great Auk [Alca impennis]. < *Zoologist*, xviii, 1860, p. 6981.

Note of its alleged occurrence in South Greenland "some 25 years ago."

1860. Pässler, W. Die Eier der Alca impennis in deutschen Sammlungen. < *J. f. O.*, viii, 1860, pp. 58–60.

Mechlenburg's in Fleusburg, Schulz's in Neubaldensleben, Hubnel's in Leipzig, Thienemann's, Pässler's—5.

1860. Steenstrup, J. J. S. [A German Version of his Memoir on the Great Auk.] < *Gelehrten Anzeigen d. k. Bayer. Akad.*, 1860, pp. ———.

Not seen. I learn from the *Zool. Rec.* for 1868 that there is such a version, but am unable to give the title.

1861. Bryant, H. Monograph of the Genus Catarractes, Moehring. < *Proc. Bost. Soc. Nat. Hist.*, viii, 1861, pp. 134–144, woodcc. on p. 135.

This memoir recognizes four species of the restricted genus "*Catarractes*"—calling them *C. troille* Linn., *C. ringvia* Brünn., *C. lomvia* Linn. (=*arra* Pall.), *C. californicus*, p. 142, sp. n. Cf. *Ibis*, 1862, pp. 185, 186.

1861. Newton, A. Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-fowl or Great Auk (Alca impennis, Linn.). < *Ibis*, iii, 1861, pp. 374–399.

Rather a summary of the history of the species in many particulars, with the copious bibliographical and historical references which this scholarly author usually gives.

1862. Bell, T. Occurrence of the Little Auk [Mergulus alle, in England] Inland. < *Zoologist*, xx, 1862, p. 7883.

1862. Bolle, C. Notiz, Alca impennis betreffend. < *J. f. O.*, x, 1862, pp. 208, 209.

1862. Homeyer, A. v. Notiz zu Alca impennis. < *J. f. O.*, x, 1862, p. 461.

Specimen in Mus. Senkenb. Naturf. Gesell. zu Frankfurt a. M.

1862. King, S. Little Auk [Mergulus alle] at Sudbury. < *Zoologist*, xx, 1862, p. 7848.

1862. Newman, E. Puffins [Fratercula arctica] in Winter. < *Zoologist*, xx, 1862, pp. 8003, 8004, figg. 1, 2.

1862. Newton, A. Abstract of Mr. J. Wolley's Researches in Iceland respecting the Gare-fowl or Great Auk [Alca impennis]. < *Zoologist*, xx, 1862, pp. 8108–8130.

Reprinted from 'Ibis,' Oct., 1861, pp. 374–399, *q. v.*

1862. Preyer, W. Ueber Plautus impennis Brünn. < *J. f. O.*, x, 1862, pp. 110–124, 337–356.

Systematic position, bibliography and synonymy, geographical distribution, past and present, including much historical matter.

1862. Preyer, W. Ueber | Plautus impennis | (Alca impennis L.) | von | William Preyer. | — | Von der Philosophischen Facultät zu Heidelberg genehmigte | Doctordissertation. | — | Heidelberg, | druck von Adolph Emmerling. | 1862. 1 vol. 8vo. Titel und pp. 42.

I. Ueber die Stellung des Brillenalks im System, pp. 3–17. II. Geographische Verbreitung, p. 17. III. Geschichte, pp. 18–42.

1862. Preyer, W. Der Brillenalk, (Plautus [Alca] impennis) in Europäischen Sammlungen. < *J. f. O.*, x, 1862, pp. 77–79.

19 specimens.

1863. Baer, K. E. v. Über das Aussterben der Thierarten in physiologischer und nicht physiologischer Hinsicht überhaupt u. s. w. < *Bull. Acad. Imp. Sci. St.-Pétersb.*, vi, 1863, pp. 513–576, nebst Karte.

This article is entirely devoted to *Alca impennis*, and consists chiefly of a German version of Steenstrup's well-known memoir.

1863. Blake-Knox, H. The Normal and Abnormal Puffins [Fratercula arctica]. < *Zoologist*, xxi, 1863, pp. 8331, 8332, fig.

1863. Blake-Knox, H. Postscript to the preceding Paper. < *Zoologist*, xxi, 1863, p. 8332.

1863. **Des Murs, O.** Notice sur l'oeuf de l'Alca impennis. < *Rev. et Mag. de Zool.*, xv, 1863, pp. 3–5, pll. 1, 2.

1863. **Newton, A.** Remarks on the Exhibition of a Natural Mummy of Alca impennis. < *P. Z. S.*, xxxi, 1863, pp. 435–438.

From the Funk Island, Newfoundland. The remarks are of an historical character. The author incidentally mentions that 63 or 64 stuffed skins of the Great Auk are at present known to exist.

1863. **Gatcombe, J.** Razorbills and Guillemots in Devonshire. < *Zoologist*, xxi, 1863, p. 8832.

1864. **Baer, K. E. v.** Über das Aussterben der Thierarten in physiologischer und nicht physiologischer Hinsicht überhaupt u. s. w. < *Mélanges Biol. Acad. Imp. Sci. St.-Pétersb.*, iv, 4^{e} livr., 1864, pp. 399–490 (nebst Karte: Ehemalige Verbreitung von Alca impennis).

Aus dem *Bulletin*, t. vi, 1863, pp. 513–576, *q. v.*

1864. **Boulton, W. W.** The Little Auk [Mergulus alle] near Beverley. < *Zoologist*, xxii, 1864, pp. 8963, 8964.

1864. **Boulton, W. W.** Bridled Guillemot [Uria lachrymans] at Flamborough Head. < *Zoologist*, xxii, 1864, p. 9291.

1864. **Champley, R.** The Great Auk [Alca impennis]. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, pp. 235, 236.

List of the birds (27), skeletons (7), and eggs (53) extant, with possessors or place of deposit.

1864. **Dutton, J.** Ringed Guillemot [Uria lachrymans] off Eastbourne. < *Zoologist*, xxii, 1864, p. 9122.

1864. **Dutton, J.** Puffin [Fratercula arctica] in Sussex. < *Zoologist*, xxii, 1864, p. 9122.

1864. **Gray, J. E.** Notice of a Skeleton of the Great Auk [Alca impennis] found in Guano near Newfoundland. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, p. 319.

1864. **Harting, J. E.** The Bridled Guillemot [Uria lachrymans] at Flamborough Head. < *Zoologist*, xxii, 1864, pp. 9251, 9252.

1864. **Jenner, E.** Razorbill [Alca torda] at Lewes. < *Zoologist*, xxii, 1864, p. 8964.

1864. **Newton, A.** Remarks on the Exhibition of a Natural Mummy of Alca impennis. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, pp. 138–141.

From *P. Z. S.*, Nov. 10, 1863, pp. 435–438, *q. v.*

1864. **Newton, A.** Remarks on the Exhibition of a Natural Mummy of Alca impennis. < *Zoologist*, xxii, 1864, pp. 9122–9124.

From *P. Z. S.*, Nov. 10, 1863, pp. 435–438, *q. v.*

1864. **Neave, E.** Young Puffin [Fratercula arctica] in November. < *Zoologist*, xxii, 1864, pp. 8891, 8892.

1864. **Pelzeln, A. v.** The Gare-Fowl, or Great Auk (Alca impennis). < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, p. 393.

Note of a specimen in the Imperial Museum at Vienna.

1864. **Sclater, P. L.** Note on the Great Auk [Alca impennis]. < *Ann. Mag. Nat. Hist.*, 3d ser., xiv, 1864, p. 320.

Criticizes the incompleteness of R. Champley's list of specimens.

1864. **Smith, Cecil.** Little Auk [Mergulus alle] in Somersetshire. < *Zoologist*, xxii, 1864, p. 8891.

1864. **Owen, R.** [On the Skeleton of Alca impennis.] < *P. Z. S.*, 1864, p. 258.

Merely a note announcing his forthcoming memoir. Cf. *P. Z. S.*, 1863, p. 435.

1865. **[Anon.]** Der grosse Alk (Alca impennis), ein ausgestorbener Vögel. < *Aus der Natur*, xxxi, oder n. F., xix, 1865, pp. 81–86, 97–103, 113–117.

1865. [FIELD, E.] Letter from the Right Rev. The Bishop of Newfoundland, concerning the Mummy of the Great Auk, (Alca impennis,) found on the Funk Islands. < *Trans. Nova Scotia Inst. Nat. Sci.*, i, pt. iii, 1865, p. 145.

3 specimens—one went to Prof. A. Newton, another to Prof. L. Agassiz, the other to J. M. Jones, President of the Institution.

1865. HOMEYER, A. v. Alca impennis im Breslauer Museum. <*J. f. O.*, xiii, 1865, pp. 151, 152.

1865. [NEWTON, A.] [On some remains of Alca impennis.] <*Ibis*, 2d ser., i, 1865, pp. 116, 117.

1865. NEWTON, A. The Gare-fowl [Alca impennis] and its Historians. <*Nat. Hist. Rev.*, Oct., 1865, pp. 467–488.

A very complete summary of the history of the remarkable bird.

1865. OWEN, R. Description of the Skeleton of the Great Auk, or Garfowl (Alca impennis, L.). <*Trans. Zool. Soc. London*, v, pt. iv, 1865 [read 1864], pp. 317–335, pll. li, lii, and a map.

A full account, with results of comparison with its allies. The specimen was that from Funk Island, mentioned in *P. Z. S.*, 1863, pp. 435–438.

1866. CLOGG, S. Little Auk [Mergulus alle] at Liskeard. <*Zoologist*, 2d ser., i, 1866, p. 101.

1866. COLLETT, R. Briefliches über Alca impennis in Norwegen. <*J. f. O.*, xiv, 1866, pp. 70, 71.

Ein schönes Ex. von Island, in der Samml. des Herrn Nicolai Aall, Besitzer der Eisenwerke bei Twedestrand.—Ref. Rasch, *Nyt Magazin for Naturvid.*, i, 1838, p. 386; Sommerfelt, *Sv. Vet.-Akad. Förh.*, 1862.

1866. MATHEW, M. A. The Great Auk [Alca impennis] on Lundy Island. <*Zoologist*, 2d ser., i, 1866, pp. 100, 101.

Strong presumptive evidence that it was alive there within 30 years.

1866. [NEWTON, A.] [On several old or little known works which mention Alca impennis, and on the discovery of a nearly complete skeleton of that bird in the Museum of the Royal College of Surgeons, supposed to have belonged to John Hunter.] <*Ibis*, 2d ser., ii, 1866, pp. 223, 224.

1866. NEWTON, A. Auszug aus Herrn J. Wolley's Untersuchungen in Island betreffend den Geier-Vogel oder grossen Alk (Alca impennis L). Uebersetzt aus „The Ibis". October 1861. <*J. f. O.*, xiv, 1866, pp. 310–338.

1866. [NEWTON, A.] Der Geiervogel [Alca impennis] and seine Geschichtsschreiber. (Uebersetzt aus der „Natural History Review," Oct. 1865.) <*J. f. O.*, xiv, 1866, pp. 394–419.

1867. BOARDMAN, G. A. On the Plumage of the Black Guillemot [Uria grylle]. <*Am. Nat.*, i, 1867, p. 53.

Asks for information on the changes of plumage, noting that the species is found in Maine in full black feather all winter.

1867. DUTTON, J. Guillemot and Razorbill near Eastbourne. <*Zoologist*, 2d ser., ii, 1867, pp. 759, 760.

1867. GUNN, T. E. The Black Guillemot [Uria grylle], an Addition to the List of Norfolk Birds. <*Zoologist*, 2d ser., ii, 1867, p. 710.

1867. GUNN, T. E. Puffins [Fratercula arctica] on the Norfolk Coast. <*Zoologist*, 2d ser., ii, 1867, p. 878.

1867. GUNN, T. E. Puffin [Fratercula arctica] on the Norfolk coast. <*Zoologist*, 2d ser., ii, 1867, p. 951.

1867. STUBBS, C. E. Little Auk [Mergulus alle], &c., at Henley-on-Thames. <*Zoologist*, 2d ser., ii, 1867, p. 710.

1868. BLAKE-KNOX, H. Little Auk [Mergulus alle] in Dublin Bay. <*Zoologist*, 2d ser., iii, 1868, p. 1424.

1868. Blake-Knox, H. Occurrence of the Ringed Guillemot [Uria lachrymans] in three instances off the Dublin Coast. < *Zoologist*, 2d ser., iii, 1868, p. 1461.

1868. Coues, E. A Monograph of the Alcidæ. < *Proc. Acad. Nat. Sci. Phila.*, xx, 1868, pp. 2–81, figg. 1–16 (woodcc.).

I. Review of the literature of the family. II. Of the characters of the family, and its subdivisions. III. Descriptious of genera and species. 2 subfamilies; 13 genera; 33 spp. *Simorhynchus cassini*, p. 45, fig. 10, n. sp.

Reprinted in *Zoologist*, v, 1870, pp. 2004, *seq.*

Cf. *Ibis*, 1868, pp. 483–485; *Zool. Rec.*, v, p. 111; *Canad. Nat. and Geol.*, n. s., iv, 1869, p. 101.

1868. Coues, E. A Monograph | of | The Alcidæ. | By | Elliott Coues, A. M., M. D. | (Ass't. Surgeon U. S. Army.) | — | Philadelphia: | Merrihew & Son, Printers, | No. 243 Arch Street, | 1868. | 8vo. pp. 81, figg. 16.

Fifty copies, separately reprinted from *Proc. Acad. Nat. Sci. Phila.*, Jan., 1868, pp. 2–81, *q. v.*

1868. Fatio, V. Quelques Mots sur les exemplaires de l'Alca impennis, oiseaux et œufs qui se trouvent en Suisse. < *Bull. Soc. Orn. de la Suisse*, tom. ii, 1re partie, pp. 73–79.

Three specimens of the skins and two of the eggs are described.

1868. Fatio, V. Liste des divers représentants de l'Alca impennis en Europe oiseaux, squelettes et œufs. < *Bull. Soc. Orn. de la Suisse*, tom. ii, 1re partie, pp. 80–85.

The author enumerates 51 skins, 6 skeletons, and 60 eggs. Cf. *Zool. Rec.*, v, p. 112.

1868. Gurney, J. H., Jr. The Great Auk [Alca impennis]. < *Zoologist*, 2d ser., iii, 1868, pp. 1442–1453.

Historical.

1868. König–Warthausen, R. Zur älteren Literatur [über Alca impennis]. < *J. f. O.*, xvi, 1868, pp. 246–258.

1868. Newman, E. [Corrected (Zool. s. s., p. 1354) date of the Extinction of Alca impennis,] The Great Auk. < *Zoologist*, 2d ser., iii, 1868, p. 1483.

1868. Olph-Galliard, L. "Phalaris psittacula trouvé en Suède." < *Revue Zoologique*, 1868, pp. 95, 96.

Not seen.

1868. Steenstrup, J. Matériaux pour servir a l'histoire de l'Alca impennis (Lin.) et recherches sur les pays qu'il habitait < *Bull. de la Soc. Orn. de la Suisse*, ii, pte. i, 1868, pp. 5–32, 32a–h, 33–70, pl.

This article is a French version of Steenstrup's famous Memoir, which originally appeared in *Vid. Meddel. Naturh. Foren. i. Kjøbenhavn för aaret* 1855, 1856–57, pp. 33–116, *q. v.*

There is a plate which belongs either to this article, or to V. Fatio's in the same part of the *Bulletin.*

"The publication of this translation by the Swiss Ornithological Society is greatly to be applauded, for few were able to read the original, published as it was in Danish, though it had already appeared in German, . . ." (*Zool. Rec.*)

1868. Wyman, J. [Note on Bones of the Great Auk (Alca impennis), found at Goose Island, Casco Bay, Maine.] < *Proc. Boston Soc. Nat. Hist.*, xi, 1868, p. 303.

1869. Anon. The Egg of the Great Auk (Alca impennis). < *Am. Nat.*, iii, 1869, p. 550.

An anonymous reference to Dr. Baldamus's report of 22 specimens in Europe, with mention of 2 known to the writer in the United States; also, on 3 skins in the United States, 2 skeletons in England and United States, and numerous osseous fragments.

1869. Clark, J. A. Little Auk [Mergulus alle] at Loughton. < *Zoologist*, 2d ser., iv, 1869, p. 1867.

1869. Feilden, H. W. [On certain specimens of Eggs of Alca impennis.] < *Ibis*, 2d ser., v, 1869, pp. 358–360.

1869. Gurney, J. H., Jr. Great Auks [Alca impennis] for Sale. < *Zoologist*, 2d ser., iv, 1869, p. 1603.

1869. Gurney, J. H., Jr. Notes on the Great Auk [Alca impennis]. < *Zoologist*, 2d ser., iv, 1869, pp. 1639–1643.

1869. Gurney, J. H., Jr. Bridled Guillemot [Uria lachrymans] at Bridlington. < *Zoologist*, 2d ser., iv, 1869, p. 1684.

1869. GURNEY, J. H., JR. The Great Auk [Alca impennis]. < *Zoologist*, 2d ser., iv, 1869, p. 1684.

1869. HUNTER, J. Little Auk [Mergulus alle] and Common Guillemot [Uria troile] at Faversham Creek. < *Zoologist*, 2d ser., iv, 1869, p. 1517.

1869. ORTON, J. The Great Auk [Alca impennis]. < *Am. Nat.*, iii, 1869, pp. 539–542, fig. 83.

Miscellaneous observations, not entirely correct.

1869. PRESTON, T. A. Winter Puffin [Fratercula arctica] at Marlborough. < *Zoologist*, 2d ser., iv, 1869, pp. 1951, 1952.

1869. REINHARDT, J. [Reprint of the original description of Uria mandti.] < *Ibis*, 2d ser., v, 1869, pp. 239–241.

From Mandt's 'Observations,' with comment.

1869. ROWLEY, G. D. The Skins of Alca impennis. < *Zoologist*, 2d ser., iv, 1869, p. 1645.

1870. [BAIRD, S. F.] Specimens extant of the Great Auk [Alca impennis]. < *Harper's New Monthly Mag.*, xli, 1870, p. 308.

1870. BLAKE-KNOX, H. Puffin [Fratercula arctica] on the Dublin Coast in February. < *Zoologist*, 2d ser., v, 1870, p. 2107.

1870. BOETTGER, O. Der nordische Papageitaucher, Mormon arctica L., verirrt in Hessen. < *Zool. Gart.*, xi, 1870, p. 163.

Aus d. *Offenbacher Ver. Naturk.*, x, p. 64.

1870? BRANDT, J. F. Ergänzung und Berichtigungen zur Naturgeschichte der Familie de Alciden. < *Bull. de l'Acad. Imp. des Sci. St.-Pétersb.*, xiv, (1869–70), 1870?, pp. 449–497.

The actual date of publication is in question: it is ostensibly November, 1869, but I doubt that it really appeared before 1870.

Conspectus familiæ *Alcidarum*, secundum Brandt:—Subfam. I.—*Pterorhines* seu *Alcinæ*. 1, *Alca;* a, *Plautus;* 1, *A. (P.) impennis;* b, *Utamania;* 2, *A. (U.) torda.* 2, *Uria;* a, *Lomvia;* 3, *U. (L.) arra;* 4, *troile;* b, *Grylle;* 5, *U. (G.) carbo;* 6, *grylle;* 7, *columba.* 3, *Brachyramphus;* 8, *B. marmoratus;* 9, *B. kitlitzii.* 4, *Synthliboramphus;* 10, *S. antiquus;* 11, *S. temminckii;* (App. *hypoleucus, craveri*). 5, *Mergulus;* 12, *M. melanoleucus.*

Subfam. II.—*Gymnorhines* seu *Phalerinæ.* 6, *Ptychoramphus;* 13, *P. aleuticus.* 7, *Simorhynchus;* a, *Tyloramphus;* 14, *S. (T.) cristatellus;* b, *Phaleris;* 15, *S. (P.) camtschaticus;* 16, *pusillus; ? cassini.* 8, *Ombria;* 17, *O. psittacula.* 9, *Ceratorhina;* 18, *C. monocerata.* 10, *Lunda;* a, *Ceratoblepharum;* 19, *L. (C.) arctica;* 20, *corniculata;* b, *Gymnoblepharum;* 21, *L. (G.) cirrata.*

Anhang: Bemerkungen über die Gattung *Sagmatorrhina* Bp.—Uebersicht der Alciden.—Bemerkungen über die Classificationen, die Entwickelungsstufen und die Verbreitung der Alciden.

1870. BRANDT, J. F. Ergänzungen und Berichtigungen zur Naturgeschichte der Familie der Alciden. < *Melanges Biol. Acad. Imp. Sci. St.-Pétersb.*, vii, 2^e livr. 1870, pp. 199–268.

Aus dem *Bulletin*, xiv, pp. 449–497, separatabdruckt.

1870. CORNISH, T. Puffins [Fratercula arctica] in Mackerel Nets. < *Zoologist*, 2d ser., v, 1870, p. 2143.

1870. COUES, E. The Great Auk [Alca impennis]. < *Am. Nat.*, iv, 1870, p. 57.

Corrects several misstatements in *Am. Nat.*, iii, 1869, p. 539, *seq.*

1870. COUES, E. Extracts from a Memoir intituled 'A Monograph of the Alcidæ'. < *Zoologist*, 2d ser., v, 1870, pp. 2004–2016, 2081–2090, 2124–2132, 2155–2163, 2205–2214, 2245–2253, 2289–2296, 2327–2334, 2369–2378, 2396–2403.

Nearly a reprint from *Pr. Phila. Acad.*, 1868: bibliographical and synonymatic matter omitted.

1870. FATIO, V. Supplément à la liste des divers representants de l'Alca impennis en Europe. < *Bull. Soc. Orn. Suisse*, ii, 1870, pp. 147–157.

Pas vu moi-même.—Pour la liste, voir *tom. cit.*, 1868, pp. 80–85.

1870. GATCOMBE, J. Bridled Guillemot [Uria lachrymans] and Little Auk [Mergulus alle, near Plymouth]. < *Zoologist*, 2d ser., v, 1870, p. 2143.

1870. GISSING, T. W. [Egg of Uria arra,] Brunnich's Guillemot. <*Zoologist*, 2d ser., v, 1870, pp. 2261, 2262.

1870. GURNEY, J. H., JR. [The Funk Island Specimen of] The Great Auk [Alca impennis]. <*Zoologist*, 2d ser., v, 1870, p. 1982.

1870. HÜGEL, A. DE. Great Auk's [Alca impennis] Eggs in Edinburgh. <*Zoologist*, 2d ser., v, 1870, p. 1982.

2 specimens in Mus. Sci. and Art.

1870. JONES, J. M. [Disposition of] The Mummy Specimen of Alca impennis at Halifax, Nova Scotia. <*Zoologist*, 2d ser., v, 1870, p. 1982.

1870. JONES, J. M. The Great Auk [Alca impennis] from Funk Island. <*Zoologist*, 2d ser., v, 1870, pp. 2182, 2183.

Personal—controversial—but with note on the mode of preservation of the mummy.

1870. NEWTON, A. "The Mummy Specimen of Alca impennis at Halifax, Nova Scotia." <*Zoologist*, 2d ser., v, 1870, p. 2065.

1870. NEWTON, A. On Existing Remains of the Gare-fowl (Alca impennis.) <*Ibis*, 2d ser., vi, 1870, pp. 256–261.

Supplementary to V. Fatio's list in *Bull. Soc. Orn. Suisse*, ii, pt. i, pp. 80–85, *q. v.* 71 or 72 skins, 9 skeletons, detached bones of 38 or 41 individuals, and 65 eggs.

1871. BLAKE-KNOX, H. Brunnich's Guillemot [Uria arra] on the Dublin Coast. <*Zoologist*, 2d ser., vi, 1871, p. 2609.

1871. GURNEY, J. H., JR. Ringed Guillemot [Uria ringvia] near Flamborough. <*Zoologist*, 2d ser., vi, 1871, p. 2729.

1871. POTTS, T. H. Notes on an Egg of Alca impennis, Linn., in the Collection of the writer. <*Trans. and Proc. N. Z. Inst. for* 1870, iii, 1871, pp. 109, 110.

Abstract in *Proc.* for same year, separately paged, p. 33, with modified title.

1871. [WHEATLAND, H.] Little Auk [Mergulus alle, occurring in New England]. <*Bull. Essex Inst.*, iii, No. 11, Nov., 1871, pp. 156, 157.

1872. ANON. Mortality amongst Razorbills [Alca torda]. <*Zoologist*, 2d ser., vii, 1872, pp. 3023, 3024.

From the London 'Field,' Feb. 24.

1872. CUPPAGE, H. C. Mortality amongst Razorbills [Alca torda]. <*Zoologist*, 2d ser., vii, 1872, pp. 3024, 3025.

From the London 'Field,' Mar. 2.

1872. DEANE, R. Great Auk (Alca impennis). <*Am. Nat.*, vi, 1872, pp. 368, 369.

Specimen found dead near St. Augustin, Labrador, Nov., 1870 (fide A. Lechevallier), ♂; sent to Europe ($200).

1872. DUNNING, J. W. Great Auk [Alca impennis]. <*Zoologist*, 2d ser., vii, 1872, p. 2946.

Extract from I. I. Hayes's 'Land of Desolation.'

1872. GOODE, G. B. A Sea Bird [Mergulus alle] Inland. <*Am. Nat.*, vi, 1872, p. 49.

At Middletown, Conn.; editorial note on same species at Middletown, Mass.

1872. GRIMSHAW, C. Mortality amongst Razorbills [Alca torda]. <*Zoologist*, 2d ser., vii, 1872, p. 3025.

1872. GURNEY, J. H., JR. Great Auk [Alca impennis] at Disco. <*Zoologist*, 2d ser., vii, 1872, pp. 3064, 3065.

Examination of evidence on the question, etc.

1872. HALE, N. F. Mortality amongst Razorbills [Alca torda]. <*Zoologist*, 2d ser., vii, 1872, p. 3024. [Bis.]

1872. LEACH, H. R. Mortality amongst Razorbills [Alca torda]. <*Zoologist*, 2d ser., vii, 1872, p. 3024.

1872. MORCOM, G. F. Great Auk [Alca impennis]. <*Zoologist*, 2d ser., vii, 1872, p. 3338.

Note on the Labrador specimen, from *Am. Nat.*

1872. "R. F. C." Mortality amongst Razorbills [Alca torda]. < *Zoologist*, 2d ser., vii, 1872, p. 3024.

From the London 'Field,' Mar. 2.

1872. Rickards, M. S. C. Mortality amongst Razorbills [Alca torda]. < *Zoologist*, 2d ser., vii, 1872, p. 3023.

1872. Sclater, J. Mortality amongst Razorbills [Alca torda]. < *Zoologist*, 2d ser., vii, 1872, p. 3025.

1873. Perkins, G. H. The Thick-billed Guillemot [Uria arra, in Vermont]. < *Am. Nat.*, vii, 1873, p. 240.

1873. [Salvin, O.] [Notice of Brandt's Memoir on Alcidæ.] < *Ibis*, 2d ser., iii, 1873, p. 104.

1873. Smith, Cecil. Guillemot [Uria troile] moulting its Quill-feathers. < *Zoologist*, 2d ser., viii, 1873, pp. 3454, 3455.

1874. Anon. The Great Auk [Alca impennis]. < *Am. Sportsman*, iv, 1874, p. 401, fig. 1.

1874. Gurney, J. H. Note on the Changes of Plumage in Guillemots [Uria troile] and Razorbills [Alca torda]. < *Zoologist*, 2d ser., ix, 1874, p. 3954.

1874. H[arvey], M. The Great Auk [Alca impennis] in New Foundland. < *Forest and Stream*, ii, May 28, 1874, p. 244.

1874. Newman, E. The Guillemots at the Zoological Gardens. < *Zoologist*, 2d ser., ix, 1874, pp. 4119, 4120.

1874. Wallis, H. M. How the Puffin [Fratercula arctica] ascends to its Nest. < *Zoologist*, 2d ser., ix, 1874, pp. 4118, 4119.

1875. Anon. Relics of the Great Auk [Alca impennis] on Funk Island. < *The London Field*, Mar. 27, Apr. 3, Apr. 10, 1875.

Not seen: perhaps three separate articles run together.

1875. Anon. The Great Auk [Alca impennis], an Extinct English Bird. < *Rod and Gun*, vi, Sept. 18, 1875, p. 375.

Reprinted from the "Cornhill Magazine."

1875. Boyes, F. Guillemot [Uria troile] bringing down its Young from the Cliff. < *Zoologist*, 2d ser., x, Feb., 1875, p. 4342.

1875. [Elliott, H. W.] Birds that breed by millions [i. e., Alcidæ of North Pacific]. < *Rod and Gun*, vi, May 1, 1875, p. 66.

1875. Gurney, J. H. Variety of the Razorbill [Alca torda]. < *Zoologist*, 2d ser., x, Mar., 1875, p. 4382.

With yellow bill and feet.

1875. Gurney, J. H., Jr. Descent of the young Guillemot [Uria troile] from its Cliff. < *Zoologist*, 2d ser., x, Oct., 1875, p. 4666.

1875. Gurney, J. H., Jr. Young Razorbills [Alca torda] and Guillemots [Uria troile]. < *Zoologist*, 2d ser., x, Nov., 1875, pp. 4697, 4698.

1876. Allen, J. A. The Extinction of the Great Auk [Alca impennis] at the Funk Islands. < *Am. Nat.*, x, No. 1, Jan., 1876, p. 48.

1876. Gurney, J. H., Jr. Waterford Great Auk [Alca impennis]. < *Zoologist*, 2d ser., xi, Mar., 1876, pp. 4847, 4848.

See p. 1449; respecting this specimen further information is here given.

1876. Gurney, J. H., Jr. Attitudes of the Guillemot [Uria troile]. < *Zoologist*, 2d ser., xi, June, 1876, p. 4958.

1876. Gurney, J. H., Jr. Scarcity of the Razorbill [Alca torda]. < *Zoologist*, 2d ser., xi, June, 1876, p. 4959.

1876. Gurney, J. H., Jr. Scarcity of the Razorbill [Alca torda]. < *Zoologist*, 2d ser., xi, Aug., 1876, p. 5048.

1876. Gurney, J. H., Jr. Breast-bones of Guillemots [Uria troile]. < *Zoologist*, 2d ser., xi, Sept., 1876, p. 5086.

1876. HARVEY, M. The Great Auk [Alca impennis]. < *Forest and Stream*, vi, July 20, 1876, p. 386; 1 fig.

1876. [INGERSOLL, E.] [Occurrence of Mergulus alle in New England.] < *Forest and Stream*, vi, Feb. 10, 1876, p. 4.

1876. SCLATER, J. Scarcity of the Razorbill [Alca torda]. < *Zoologist*, 2d ser., xi, July, 1876, p. 5007.

1876. TUCK, J. G. The Puffin [Fratercula arctica]. < *Zoologist*, 2d ser., xi, June, 1876, p. 4958.

1877. BARROWS, W. B. Catalogue of the Alcidæ contained in the Museum of the Boston Society of Natural History, with a Review and proposed Classification of the Family. < *Proc. Bost. Soc. Nat. Hist.*, xix, for Apr. 4, 1877; pub. Oct.–Nov., 1877, pp. 150–165.

The paper treats of 21 spp., being those that the author recognizes as valid, whether specimens of them be in the Museum or not. These are ranged under the genera *Fratercula, Phaleris, Mergulus, Brachyrhamphus, Uria, Lomvia,* and *Alca;* dispensing with subfamilies altogether.

1877. BUREAU, L. De la Mue du Bec et des Ornements Palpébraux du Macareux arctique, Fratercula arctica (Lin.) Steph. après la saison des amours. < *Bull. Soc. Zool. de France*, 1877, pp. 1–22, table, pll. iv, v. (Aussi séparément, in-8°, Paris, 1877, pp. 1–22, table, pll. iv, v.)

I have only seen the separate, which however is identical with the *Bulletin* in which the paper originally appeared. In 1879 it was combined with a later paper on same subject, the two together being reissued apart from the *Bulletin* under the title of the later paper alone. See 1879, same author.

This is a contribution of great originality, interest, and importance. It establishes a before unsuspected fact, that *Fratercula arctica* regularly moults portions of the horny sheath of the bill, and also the excrescences upon the eyelids. The whole process and its results are presented in detail, according to the author's extended and novel researches. Two horse-shoe-shaped pieces, which are saddled on the bases of the upper mandible, and two other pairs of pieces; together with a similar shoe-shaped piece, and a similar pair of slender pieces, from the under mandible, making in all nine separate portions of the horny covering of the bill, are moulted; as is the excrescence upon each eyelid. All these deciduous pieces, as well as the permanent portions of the bill, are elaborately described, and the appearance of the bird at different seasons, conformably with these extraordinary circumstances, is also fully presented. The history of the author's experiences—how he came to make the discovery, and how he established the facts—is an interesting part of the paper. The conditions of the bill before, during, and after the process are figured in colors in an ingenious manner. The author was, of course, greeted with acclamation; the article was immediately translated, with editorial comment, by E. Coues, for the *Bulletin of the Nuttall Ornithological Club*, iii, Apr., 1878, pp. 87–91; and J. E. Harting gave a synopsis, with one of the plates, in the *Zoologist* of that year. The latter I have not seen.

M. Bureau's discovery naturally directed attention to the various and curious North Pacific allies of *F. arctica*, raising the expectation, afterward justified, that a similar condition of things would be established among these forms. The author discreetly forbore to prophecy, but entered upon the now obvious course of inquiry which resulted in 1879 in a second admirable paper on the same subject.

1877. [GRINNELL, G. B.] The Little Auk [Mergulus alle, in Connecticut]. < *Forest and Stream*, vii, Jan. 25, 1877, p. 388.

1877. NEWTON, A. [Remarks on Exhibition of a Variety of the Guillemot, Uria troile.] < *P. Z. S.*, Jan. 2, 1877, p. 2.

With yellow bill and feet, and white claws. Attention called to similar conditions of *Pica rustica* and of *Colymbus torquatus.*

1877. [SCOTT, W. E. D.] Little Auk (Mergulus alle [inland]). < *The Country*, i, Dec. 15, 1877, p. 91.

1878. A[LLEN], J. A. Barrow's "Catalogue of the Alcidæ." < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, p. 86.

Review of his paper in *Pr. Bost. Soc.*, xix, 1877, pp. 150–165.

1878. COUES, E. On the Moult of the Bill and Palpebral Ornaments in Fratercula arctica. < *Bull. Nutt. Ornith. Club*, iii, No. 2, Apr., 1878, pp. 87–91.

An abridged translation, with notes, of L. Bureau's extraordinary paper in *Bull. de la Soc. Zool. de France*, 1877. 8vo, pp. 1–22, pll. 4, 5. Paris, 1877.

1878. [SCLATER, P. L., *and* SALVIN, O.] Bureau on the Moulting of portions of the Puffin's [Fratercula arctica] beak. < *Ibis*, 4th ser., ii, Oct., 1878, p. 475.

Notice of the remarkable paper in *Bull. Soc. Zool. de France*, 1877, pp. 1–22, *q. v.*

1878. [SCOTT, W. E. D.] [Utamania torda on the Coast of New Jersey, Feb. 7th.] < *The Country*, i, Mar. 2, 1878, p. 260.

1879. BUREAU, L. Recherches sur la Mue du Bec des Oiseaux de la Famille des Mormonidés. < *Bull. Soc. Zool. de France*, 1879, pp. 1–68, table, carte, pll. i–vi. (Aussi séparément, in–8°, Paris, F. Savy, 1879; pp. 1–68, table, carte, pll. i–vi.)

This I have not seen as published in the Bulletin. It was immediately reproduced, combined with the author's paper of 1877 on the same subject. *See next title.*

This paper continues the author's important researches into the moult of the bill in certain *Alcidæ*, and shows that, as was expected, the same conditions obtain among the various Pacific forms related to *Fratercula arctica*. The happy discovery, so important in itself, was further the means of settling the status of several vexed species. The following are the main points of this admirable study:

A family, *Mormonidæ*, is separated from *Alcidæ* to accommodate the genera *Fratercula*, *Lunda*, *Ceratorhyncha*, *Ombria*, and *Simorhynchus*, in which there is a moult of portions of the bill, and a double moult of the plumage. The whole matter of the seasonal changes, both of the bill and of the plumage, is very elaborately presented.

Fratercula arctica is differentiated into three geographical races, shown by a colored map to correspond with certain isothermal lines. *F. armoricana* (n. v.), of certain portions of Europe alone, chiefly south of 60° N. lat.; *F. islandica* (n. v.), of general dispersion on the north coast of Europe, in Iceland, Southern Greenland, Labrador, Newfoundland, and Kodiak Island in the Pacific; *F. glacialis*, of Spitzbergen, Northern Greenland, and possibly Northern Labrador.

The moult of the bill in *Fratercula corniculata* is the same as in *F. arctica*, excepting that one pair of the deciduous pieces is wanting. The moult of the eyelids is the same.

The moult in *Lunda cirrhata* is the same as in *F. corniculata*, as far as the bill is concerned; but there are no excrescences to shed from the eyelids. The *Sagmatorhina lathami* of Bonaparte is the young bird.

Chimerina cornuta (*Ceratorhina monocerata*) moults the horn and a small horny strip below the nostrils. The *Cerorhina suckleyi* or *Sagmatorhina suckleyi* is the same bird, young or old, without the horn.

Ombria psittacula sheds a saddle-shaped piece from the base of the upper mandible.

Simorhynchus cristatellus sheds all the *red* parts of the bill, in four pairs of pieces, three from the upper mandible. *S.* "*dubius*" and *S.* "*tetraculus*" are the same bird, without these ornaments.

Simorhynchus camtschaticus probably moults one pair of pieces from the upper mandible, being nearest in respect to *Ombria*. *S. cassini* of Coues is the young bird.

Simorhynchus microceros moults the tubercle on the upper mandible. *S. pusillus* is the same bird.

The author does not appear to have seen Brandt's latest paper, in which he makes a similar reduction of the species of this group. It may be added, without detracting in the least from the merit of M. Bureau's brilliant discovery, that his determinations of species are, without exception, the same as those given in E. Coues "Key to North American Birds," 1872. Neither Brandt nor Coues had any idea of the actual state of the case, so far as the moult of the bill is concerned, but made their determinations of species upon other considerations.

1879. BUREAU, L. Recherches | sur la | Mue du Bec des Oiseaux | de la | Famille des Mormonidés | par | Le Docteur Louis Bureau [etc., 6 lignes] | — | (Extrait du Bulletin de la Société Zoologique de France, [1877 et] 1879.) | — | Paris | Librairie F. Savy | 77, Boulevard Saint-Germain, 77 | — | 1879 8vo. Cover-title, half-title, title, each 1 leaf; pp. 1–22, 1 folding table, pll. iv, v; pp. 1–68, 1 folding table, 1 chart, pll. i–vi.

This brochure consists of two entirely distinct articles, united under the same three titles. The first article consists of the paper "De la Mue du Bec et des Ornements palpébraux du Macareux arctique, Fratercula arctica (Lin.) Steph. après la saison des amours," pp. 1–22, table and 2 plates, reproduced from the *Bull. Soc. Zool. de France*, 1877. The second article is "Recherches sur la Mue du Bec des Oiseaux de la Famille des Mormonidés," pp. 1–68,

1879. BUREAU, L.—Continued.

table, map and 6 plates, reproduced from the *Bull. Soc. Zool. de France*, 1879. Each article is separately paged, and the two together are furnished with the cover-title, half-title, and regular title above given. The numbering of the plates is the same as in the *Bulletin*. For comment on these papers *see* each of them, 1877 and 1879, BUREAU, L.

1879. COUES, E. Note on Alle nigricans, Link. < *Bull. Nutt. Ornith. Club*, iv, No. 4, Oct., 1879, p. 244.

Showing that this term, proposed by Link in 1806, has priority over any of the names usually employed for the Dovekie, *Mergulus alle* of authors.

1879. MAYNARD, C. J. Wanderings of a Naturalist. < *Town and Country* (newspaper of Boston), June, 1879.

Chap. IV. The Razor-billed Auk, *Alca torda*. Full biography.

Spheniscidæ.

1769. Pennant, T. Account of the different Species of the Birds, called Pinguins. < *Philos. Trans. for* 1768, lviii, 1769, pp. 91–99, pl. v.

Patagonian P., p. 91, pl. v, n. sp., not binomially named. The other two species given are the Lesser P. (=*Diomedea demersa* L.) and the Red-footed P. (=*Phaeton demersus* L.)

1774. M[urr], C. G. v. Beschreibung des Patagonischen Pinguins. Aus dem 58. Band der philosophischen Transactionen, vom Jahr 1769. übersezt von C. G. v. M[urr]. < *Der Naturforscher*, i, 1774, pp. 258–261.

Cf. *op. cit.*, xxiii, 1788, p. 127.

1781. Forster, J. R. Historia Aptenodytæ, generis Avium orbi australi proprii. < *Comment. Soc. Reg. Sci. Göttingen*, iii, 1781, (*Comm. Phys.*), pp. 121–148, pll.

Seen, but title taken at second hand.

This article stands easily first among the early writings upon the subject, marking a great advance upon previous knowledge of the family, and representing the starting-point of the exact literature of *Spheniscidæ*. Forster throws all the Penguins into one genus, *Aptenodytes*, dividing them into the *Cristatæ*, with one species, *chrysocome*, and the *Alophæ*, with eight species. Of Forster's nine species, six are named for the first time; seven or eight are valid; four are valid and new. The species are: *A. chrysocome*, n. s., p. 135, pl. 1; *A. patchonica*, n. s., p. 137, pl. 2; *A. papua*, Scop., p. 140, pl. 3; *A. antarctica*, n. s., p. 141, pl. 4; *A. magellanicus*, n. s., p. 143, pl. 5; *A. demersus* Linn.; *A. catarractes*, n. s., p. 145 (=*Phaëton demersus* Linn.); *A. torquata*, n. s., p. 146; *A. minor*, n. s., p. 147.

1797. Geoffroy St.-Hilaire, É. Sur les Manchots [Spheniscidæ]. < *Millin, Magas. Encycl.*, iii, vi, 1797, pp. 11, 12. (*Bull. Sc. Soc. Philom.*, i, ii, 1798, p. 81.)

Pas vu moi-même—le titre tiré de Carus et Engelmann.

1825. Weddell, —. Ueber die Aptenodytes und Diomedea-Arten Süd-Georgiens. < *Fror. Notizen*, Bd. xii, nr. 255, 1825, pp. 198–200.

Not seen—title from Carus and Engelmann.

1832. Earle, —. Die Brutplätze des Pinguins. < *Fror. Notizen*, xxxiv, No. 738, 1832, pp. 178–180.

Not seen.

1832. Jäger, G. Theilung der Luftröhre durch eine Scheidewand bei der Fettgans (Aptenodytes demersa). < *Muller's Arch. Anat. Phys.*, vi, 1832, pp. 48–54.

1833. Yarrell, W. [On the Woolly and Hairy Penguins (Aptenodytes) of Latham.] < *P. Z. S.*, i, 1833, pp. 33, 34.

1833. Yarrell, W. [On the Identity of the Woolly Penguin of Latham with the Aptenodytes patachonica, Gmel.) < *P. Z. S.*, i, 1833, p. 65.

1834. Bennett, G. [On the Habits of the King Penguin (Aptenodytes patachonica, Gmel.).] < *P. Z. S.*, ii, 1834, p. 34.

1834. Bennett, G. [On the Habits of the King Penguin (Aptenodytes patachonica).] < *Lond. and Edinb. Philos. Mag.*, v, 1834, p. 231.

From *P. Z. S.*, May 13, 1834.

1834. Bennett, G. [Sur la manière de vivre du Pingouin royale, Aptenodytes patachonica.] < *L'Institut*, ii, No. 81, 1834, p. 388.

Not seen—title from Carus and Engelmann.

1834. Meyen, F. J. F. [Spheniscus humboldtii, sp. n.] < *Nova. Acta Acad. Cæs. Leop.-Carol.*, xvi, suppl. i, 1834, p. 110, pl. 21.

This is not properly citable as a separate title, the new Penguin being described in a paper of much wider scope.

1835. Bennett, [G.] Ueber die Lebensart des Kônigspinguins (Aptenodytes patachonica). < *Oken's Isis*, Bd. xxviii, 1835, p. 1027.

Auszug aus *P. Z. S.*, ii, 1834, p. 34.

1835. Reid, —. [Anatomical Description of the Patagonian Penguin (Aptenodytes patachonica, Forst.).] < *P. Z. S.*, iii, 1835, pp. 132–148.
Very full, especially on the osteology and myology.

1835. Reid, —. [Anatomical Description of the Patagonian Penguin, Aptenodytes patachonica, Forst.] < *Lond. and Edinb. Philos. Mag.*, vii, 1835, pp. 519–534.
From *P. Z. S.*, Sept. 22, 1835, pp. 132–148.

1835. Yarrell, [W.] [Beschreibt den wolligen und den haarigen Pinguin, Lath. x. p. 392.] < *Oken's Isis*, Bd. xxviii, 1835, p. 523.
From *P. Z. S.*, 1833, p. 33.

1837. Brandt, J. F. Note sur une nouvelle espèce du genre Catarhactes [chrysolophus] de Brisson. < *Bull. Acad. Impér. Sci. St.-Pétersb.*, ii, 1837, pp. 314, 315.
Not seen—title from *Roy. Soc. Cat.*

1838. Brandt, [J. F.] Note sur une nouvelle espèce du genre Catarhactes [chrysolophus] de Brisson. < *Revue Zoologique*, i, 1838, pp. 114, 115.
Extraite du *Bull. de l'Acad. impér. de St.-Pétersb.*, 7 Juillet 1837, pp. 314, 315.

1839. Couch, J. Disposition of the Marsupialia. < *Charlesw. Mag. Nat. Hist.*, iii, 1839, p. 312.
Extract from Goodridge's "Narrative of a Voyage to the South Seas," etc., Exeter, 1838, p. 45, giving "a plain sailor's" account of the temporary pouch in which the eggs of Penguins are carried; believed to be the earliest intimation recorded of the singular fact.

1840. Brandt, J. F. Ueber die Flossentaucher (Impennes seu Aptenodytidæ) als Typen einer eigenen Gruppe unter den Schwimmvögeln. < *Mém. de l'Acad. Imp. Sci. St.-Pétersb.*, vi sér., v tome, ii pte., *Sci. Nat.*, iii, 1840, pp. 213–217, pll. xii (figg. 5–7), xiii.
A subtitle, being the fifth part of the series entitled: „ Beiträge zur Kenntinss der Naturg. Vögel," u. s. w.

1843. Gray, G. R. Aptenodytes. < *Ann. Mag. Nat. Hist.*, xiii, 1843, p. 315.
Discrimination of 2 spp. of "King" Penguins, hitherto confounded; one being named *A. pennantii*, the other *A. forsteri*, spp. nn.

1848. Obœuf, —. Moeurs du pingouin de Patagonie (aptenodytes patagonica) et de deux autres espèces voisines. < *Arch. des Sci. Phys. et Nat. Genève*, vii, 1848, p. 244.
Revue Zoologique, 1847, No. 8.

1855. Brewer, T. M. [On a Fossil Egg, supposed to be of a Penguin, from the Chincha Islands. < *Proc. Boston Soc. Nat. Hist.*, v, 1855, p. 107.
Cf. *tom. cit.*, p. 165.

1855. Hayes, A. A. Report on a Specimen of Fossilized Egg, from the Guano Islands, off the coast of Peru. < *Proc. Boston Soc. Nat. Hist.*, v, 1855, pp. 165–167.
The body is named Oöguanolite. Cf. p. 107, where the egg is supposed to be that of a Penguin.

1856. Bonaparte, C. L. Conspectus Ptilopterorum Systematicus. < *Compt. Rend. de l'Acad. Sci. Paris*, xlii, 1856, p. 775.
À la fin des "Tableaux paralléliques des Pelagiens ou Gaviæ" se trouve un *Conspectus Ptilopterorum Systematicus*, dans lequel l'auteur propose le genre *Eudyptula*, et donne les noms de *Aptenodytes rex* et *A. imperator*, "auct.", sans en donner aucune description.

1860. Abbott, Charles Conrad. The Penguins [Spheniscidæ] of the Falkland Islands. < *Ibis*, ii, 1860, pp. 336–338.
Field-notes on four spp.

1860. [Sclater, P. L.] [Notice of a collection, containing five species of Spheniscidæ, made by Captain Pack at the Falkland Islands.] < *The Ibis*, ii, 1860, p. 432.

1860. Gould, J. [Exhibition of a series of five Penguins, and descriptions of two new Species.] < *P. Z. S.*, xxviii, 1860, pp. 418, 419.
Eudyptes nigrivestis, p. 418; *E. diadematus*, p. 419.

1861. Gould, J. [On two new species of Penguins.] < *Ann. Mag. Nat. Hist.*, 3d ser., vii, 1861, pp. 217–219.

From *P. Z. S.*, Nov. 27, 1860, pp. 418, 419.

1865. Anon. The Penguin at the Zoological Gardens [of London]. < *The Intellectual Observer*, vii, 1865, p. 321.

Note on habits in captivity.

1865. Anon. Der Pinguin oder die Fettgans. < *Aus der Natur*, xxx, oder n. F., xxi, 1865, pp. 438–442.

1865. Owen, R. On the Morbid Appearances observed in the Dissection of the Penguin (Aptenodytes forsteri). < *P. Z. S.*, xxxiii, 1865, pp. 438, 439.

The species was afterward determined to be *A. pennanti*, not *A. forsteri*, as at first supposed.

1865. Sclater, P. L. [Announcement of the arrival of a specimen of the King Penguin (Apterodytes pennanti).] < *P. Z. S.*, xxxiii, 1865, p. 318.

1865. Tegetmeier, W. B. The King Penguin (Apterodytes Pennantii). < *The Intellectual Observer*, vii, 1865, pp. 403–409, 1 col'd pl., and 1 woodcut.

1867. Schlegel, H. Urinatores < *Mus. Hist. Nat. Pays-Bas*, 9^{me} livr., Avril, 1867, pp. 1–52.

The "Urinatores" of this author consist of the genera *Spheniscus*, *Alca*, *Colymbus*, *Podiceps*, and *Heliornis*, and they are treated in the ninth livraison of the unfinished work above quoted, along with "Coraces," and the conclusion of "Anseres," occupying pp. 1–52 of the third of the three paginations of which this livraison consists. (The work is issued in serial fashion, and, until it is finished, with its parts rearranged, and furnished with title pages, it cannot easily be cited in any usual bibliographical manner.

The genus *Spheniscus* of this author, *i. e.*, the family *Spheniscidæ*, occupies pp. 1–12 of the pagination just indicated, and is treated in the well-known manner. The species recognized and described at greater or less length are twelve in number, namely: *Spheniscus pennantii*, *patagonicus*, *adeliae*, *papua*, *antarcticus*, *chrysocome*, *chrysolophus*, *diadematus*, *catarractes*, *antipodes*, *minor*, and *demersus*.

1868. Anon. Der Pinguin in Patagonien . . . < *Aus der Natur*, xliv, oder n. F., xxxii, 1868, p. 239.

1868. Anon. Pinguine. < *Aus der Natur*, xlvi, oder n. F., xxxiv, 1868, p. 800.

„Man schätzt die im Jahre 1867 auf den Maluinischen Inseln getödteten Pinguine auf 405,000 Stück."

1869. Newton, A. On the Origin of the Name "Penguin." < *Ann. Mag. Nat. Hist.*, 4th ser., iv, 1869, p. 133.

Penguin or Pengwin meaning pen-wing or pin-wing; probably no relation with the Latin pinguedo or Welsh pen gwyn.

1870. [Baird, S. F.] Nesting place of Penguins. < *Harper's New Monthly Mag.*, xli, 1870, p. 152.

A note on the carrying of the egg in the temporary pouch in the belly.

1870. Finsch, O. Description of a new Species of Penguin [Dasyrhamphus herculis]. < *P. Z. S.*, xxxviii, 1870, p. 322, pl. xxv.

1871. Sundevall, C. J. [Spheniscus mendiculus, sp. n.] < *P. Z. S.*, 1871, p. 129.

This is not properly citable as a separate title, for the description occurs in a paper "On Birds from the Galapagos Islands," *l. c.*, pp. 126–130; I, however, make the reference.

1872. A[llen], J. A. Catalogue of the Penguins in the Museum of the Boston Society of Natural History. < *Am. Nat.*, vi, 1872, pp. 545, 546.

A review of A. Hyatt's paper, *Proc. Bost. Soc.*, xiv, 1872, pp. 237–251. (Cf. *Am. Nat.*, vi 1872, pp. 472, 473.)

1872. C[oues], E. The Boston Society's Ornithological Catalogue. < *Am. Nat.*, vi, 1872, pp. 472, 473.

A review of A. Hyatt's paper on the *Spheniscidæ*, *Proc. Bost. Soc.*, xiv, 1872, pp. 237–251. (Cf. *Am. Nat.*, vi, 1872, pp. 545. 546.)

1872. Coues, E. Osteological Notes [on Spheniscidæ]. < *Proc. Bost. Soc. Nat. Hist.*, xiv, 1872, pp. 251–253.

A subtitle in conclusion of a preceding article, *i. e.*, *Hyatt's Catalogue of the Ornith. Collection of the Boston Soc. Nat. Hist.*, pp. 237–251. These "notes" consist of a sketch of the leading features of the skeleton.

1872. Coues, E. Material for a Monograph of the Spheniscidæ. < *Proc. Acad. Nat. Sci. Phila.*, xxiv, 1872, pp. 170–212, pll. 4, 5.

Based chiefly on the specimens in the Museums of the Smithsonian Institution and of the Philadelphia Academy, the former being notable as containing T. R. Peale's types, and the latter including the largest collection of Penguins in America.

The copious synonymy gives nearly every name, generic or specific, which had at that time been proposed for this group of birds; and each species recognized by the author is fully described, with much critical matter. The paper is divided into parts, as follows:

I. On the Literature of the Subject, pp. 170–181. This is a list, in chronological order, of the principal writings upon Penguins, sufficiently analyzed to give the gist of each author, especially with reference to the successive establishment of new generic and specific names, and the identification thereof; it takes note not only of special papers on *Spheniscidæ*, but also of those portions of more general works which treat of birds of this family. Those who have occasion to look up the literature of *Spheniscidæ* will find this article in some respects more satisfactory than the present Bibliography.

II. On Certain Points of Cranial Structure bearing upon the Determination of the Genera, pp. 181–189. The author describes the skulls of various species in sufficient detail to show that there are three leading modifications of the cranium, upon which he would recognize three genera, *Aptenodytes*, *Eudyptes*, *Spheniscus;* he however retains for certain species a fourth genus, *Pygoscelis*. The wing and leg bones of *Aptenodytes* are also described. This part of the subject is illustrated with the two plates.

III. On the Geographical Distribution of the Family, pp. 189, 190, followed, p. 191, by a Key to the Species.

IV. Determination of the Species, pp. 192–212. The following species are recognized:

1. *Aptenodytes patagonica* Forst. (*forsteri* Gray, *imperator* Bp.).
2. *Aptenodytes longirostris* Scop. (*patachonica* Aliq., *pennantii* Gray, *rex* Bp.).
3. *Pygoscelis tæniata* Peale (*papua* Forst., *wagleri* Scl.).
4. *Pygoscelis adeliæ* H. and J. (*brevirostris* Gray, *longicauda* Peale, *herculis* Finsch).
5. *Pygoscelis antarctica* Forst.
6. *Eudyptes antipodes* H. and J. (*flavilarvata* Peale).
7. *Eudyptes catarrhactes* Forst. (*Phaëton demersus* L., *cristata* Shaw, *saltator* Steph., *gorfua* Bonn.).
8. *Eudyptes chrysocome* Fort. (*pachyrhyncha* Gray, *nigrivestis* Gould).
9. *Eudyptes chrysolopha* Brandt.
10. *Eudyptes diadematus* Gould.
11. *Spheniscus minor* Forst. (*undina* Gould).
12. *Spheniscus demersus* Linn., with *S. magellanicus* as a variety

    Spheniscus mendiculus Sund., not treated.

Cf. *Zool. Rec.* for 1872, p. —; *Am. Nat.*, vii, 1872, pp. 38–40.

It may be useful to give here in chronological order a nearly complete list of the names which have been proposed for *Spheniscidæ*, beginning with Linnæus:

1766. *Diomedea demersa* Linn., *Syst. Nat.*, i, p. 214.
1766. *Phaëton demersus* Linn., *Syst. Nat.*, i, p. 219.
1777. *Aptenodytes longirostris* Scopoli.
1777. *Aptenodytes papua* Scopoli.
1777. *Aptenodytes platyrhyncha* Scopoli.
1781. *Aptenodytes chrysocome* Forst., *Comm. Reg. Soc. Sci. Gött.*, iii, p. 135.
1781. *Aptenodytes patachonica* Forst., *l. c.*, p. 137.
1781. *Aptenodytes antarctica* Forst., *l. c.*, p. 141.
1781. *Aptenodytes magellanicus* Forst., *l. c.*, p. 143.
1781. *Aptenodytes catarractes* Forst., *l. c.*, p. 145.
1781. *Aptenodytes torquata* Forst., *l. c.*, p. 146.
1781. *Aptenodytes minor* Forst., *l. c.*, p. 147.
1782. *Aptenodytes gorfua*, Bonnaterre, *Encyc. Méth.*, i, p. 67.
1788. *Aptenodytes chilensis* Gm., *Syst. Nat.*, i, p. 559.
1788. *Aptenodytes chiloensis* Gm., *Syst. Nat.*, i, p.559.
1790. *Aptenodytes molinæ* Lath., *Ind. Orn.*, p. 881.
17—. *Pinguinaria cristata* Shaw, *Nat. Misc.*, pl. 437.
1800. *Aptenodgtes fuscirostris* Illiger.
1816. *Eudyptes* Vieillot, *Analyse.*
1825. *Chrysocoma saltator* Steph., *Shaw's Gen. Zool.*, xiii, p. 58.

1872. COUES, E.—Continued.

1825. *Spheniscus novæ hollandiæ* Steph., *l. c*, p. 68.
1832. *Pygoscelis* Wagler, *Isis*, p. 183.
1834. *Spheniscus humboldtii* Meyen, *Nov. Act. Acad. Caes. Leop.*, xvi, supp. i, p. 110.
1837. *Catarractes chrysolopha* Brandt, *Bull. Acad. Sc. St. Pétersb.*, ii, p. 324.
1841. *Catarractes adeliæ* Homb. and Jacq., *Ann. Sc. Nat.*, p. 320.
1841. *Catarractes antipodes* Hombr. and Jacq., *l. c.*
1842. *Dypsicles* Gloger, *Handb. Naturg.*
184–. *Pygoscelis brevirostris* Gray, *Voy. Ereb. & Terr.*
1841. *Eudyptes pachyrhyncha* Gray, *l. c.*
1844. *Aptenodytes palpebrata* Licht., ed. Forst. *Descr. An.*, p. 356.
1844. *Aptenodytes brasiliensis* Licht., *l. c.*, p. 355.
1844. *Aptenodytes forsteri* Gray, *Ann. Mag. N. H.*, p. 315.
1844. *Aptenodytes pennantii* Gray, *l. c.*
1844. *Aptenodytes undina* Gould, *P. Z. S.*, p. 87.
1846. *Dasyrhamphus*, Hombr. and Jacq.
1848. *Aptenodytes magnirostris* Peale, *U. S. Expl. Exped.*, p. 263.
1848. *Aptenodytes flavilarvata* Peale, *l. c.*, p. 260.
1848. *Aptenodytes longicaudata* Peale, *l. c.*, p. 261.
1848. *Aptenodytes tæniata* Peale, *l. c.*, p. 264.
1856. *Aptenodytes rex* Bp., *Compt. Rend.*, p. 775.
1856. *Aptenodytes imperator* Bp., *Compt. Rend.*, p. 775.
1859. *Palæeudyptes antarcticus* Huxley, *Journ. Geol. Soc.*, xv, p. 672.
1860. *Pygoscelis wagleri* Scl., *P. Z. S.*, p. 392.
1860. *Eudyptes nigrivestis* Gould, *P. Z. S.*, p. 418.
1860. *Eudyptes diademata* Gould, *l. c.*, p. 419.
1870. *Dasyrhamphus herculis* Finsch, *P. Z. S.*, p. 322.
1871. *Spheniscus mendiculus* Sund., *P. Z. S.*, p. 129.
1873. *Spheniscus trifasciatus* Philippi, "*Zeitschr. ges. Naturw.*, xli, 1873, p. 121."
1874. *Eudyptula albosignata* Finsch, *P. Z. S.*, p. 207.
1875. *Eudyptes vittata* Finsch, *Ibis*, p. 112.
1875. *Eudyptes atrata* (Hutton) Finsch, *Ibis*, p. 114.

1872. HECTOR, J. On the Remains of a Gigantic Penguin (Palæeudyptes antarcticus, Huxley) from the Tertiary Rocks on the West Coast of Nelson. < *Trans. and Proc. New Zealand Inst. for* 1871, iv, 1872, pp. 341–346, pll. xvii, xviii.

For a preliminary notice see *op. cit.*, ii, p. 403; paper delayed for the illustrations.

1872. HYATT, A. Catalogue of the Ornithological Collection of the Boston Society of Natural History. [Part I. Spheniscidæ.] < *Proc. Bost. Soc. Nat. Hist.*, xiv, 1872, pp. 237–251.

The author carefully treats of the nine species contained in the Society's Museum, making of the "Catalogue," in fact, a monographic sketch of the group.

1873. A[LLEN], J. A. Monograph of the Spheniscidæ. < *Am. Nat.*, vii, 1872, pp. 38–40.

Review of E. Coues's *Material for a Monograph of the Spheniscidæ, Proc. Acad. Nat. Sci. Phila.*, 1872, pp. 170–212.

1873. HECTOR, J. Further Notice of Bones of a Fossil Penguin (Palæeudyptes antarcticus, Huxley). < *Trans. and Proc. New Zealand Inst. for* 1872, v, 1873, *Proc. Wellington Phil. Soc.*, pp. 438, 439.

Additional specimens; cf. *op. cit.*, iv, 1872, pp. 341–346.

1873. [SALVIN, O.] [Reference to Bonaparte's Conspectus Ptilopterorum Systematicus, Comptes Rendus, 1856, p. 775.] < *Ibis*, 3d ser., iii, 1873, pp. 103, 104.

Where appear the names *Aptenodytes rex* and *A. imperator.*

1874. FINSCH, O. Description of a new Species of Penguin [Eudyptula albosignata] from New Zealand. < *P. Z. S.*, 1874, pp. 207, 208.

1874. HYATT, A. Note on Aptenodytes patagonica Forst. < *Proc. Bost. Soc. Nat. Hist.*, xvii, 1874, p. 94.

Its specific distinctness from *A. pennanti.*

1874. NEWMAN, E. The Penguin at the Zoo[logical Society of London]. < *Zoologist*, 2d ser., ix, 1874, pp. 4262–4264.

Interesting account of actions and appearance in confinement. Cf. *op. cit.*, p. 4848.

1875. FINSCH, O. On two apparently new Species of Penguins from New Zealand. < *Ibis*, 3d ser., v, 1875, pp. 112–114.

Eudyptes vittata, p. 112: *E. atrata* "Hutton", p. 114.

1876. NEWMAN, E. The King Penguin at the Zoo[logical Society of London]. < *Zoologist*, 2d ser., xi, Mar., 1876, p. 4848.

Obituary. See *op. cit.*, p. 4262.

1877. [BULKLEY, J. M.] A domesticated Penguin. < *Forest and Stream*, viii, Apr. 19, 1877, p. 160.

1878. [SCLATER, P. L.] [Report on additions to the Society's Menagerie in January, 1878.] < *P. Z. S.*, Feb. 5, 1878, p. 116.

Spheniscus humboldti the only bird.

1879. ANON. A Group of Penguins. < *Pacific Rural Press*, xvii, No. 18, May 3, 1879, p. 289; cut of 5 figg.

A slight sketch, "written up" to the cut.

1879. BARTLETT, A. D. Remarks upon the Habits and Change of Plumage of Humboldt's Penguin [Spheniscus humboldti]. < *P. Z. S.*, Jan. 14, 1879, pp. 6–9, figg. 1, 2.

An interesting article, from observations upon an individual in captivity.

Tinamidæ.

1832. Geoffroy St.-Hilaire, Isid. Eudromie. Eudromia. Isid. Geoff. < *Guér. Mag. de Zool.*, 2e année, 1832, Classe ii, Ois., Notice i, pl. i.

Eudromia elegans, D'Orb. et Is. Geoff.; gen. sp. n.

1836. Vigors, N. A. [Characters of a new and singular form among the Tinamous (Tinamotis pentlandii, g. sp. n.)] < *P. Z. S.*, iv, 1836, p. 79.

1837. Vigors, N. A. [Note on Tinamotis pentlandii (from P. Z. S., Sept. 13, 1836.)] < *Lond. and Edinb. Philos. Mag.*, x, 1837, p. 289.

1838. Vigors, N. A. Ueber einen neuen Vogel [Tinamotis pentlandii] zwischen Tinamu und Trappen, mitgebracht von Pentland von den hohen Anden. < *Oken's Isis*, Bd. xxxi, 1838, p. 195.

Auszug aus *P. Z. S.*, iv, Sept., 1836, p. 79.

1863. Natterer, J. (*Ed. Pelzeln, A. v.*) Handschriftliche Notizen [über drei Arten der Gattung Tinamus]. < *Verh.* (*Abh.*) *k.-k. zool.-bot. Ges. Wien*, xiii, 1863, pp. 1128–1130.

Als Anhang zu Pelzeln's ,,Ueber vier von Natterer in Brasilien gesammelte noch unbeschriebene Vogelarten,'' *tom. cit.*, pp. 1124–1130.

1863. Pelzeln, A. v. Ueber vier von Natterer in Brasilien gesammelte noch unbeschriebene Vögelarten. < *Verh. k.-k. zool.-bot. Gesellsch. Wein*, xiii, Oct. 10, 1863, pp. 1125–1130.

Three spp. of *Tinamidæ: T. guttatus*, p. 1126; *T. erythropus*, p. 1127; *T. brevirostris*, p. —.

1867. Bartlett, A. D. [Remarks on the breeding of Rhynchotis rufescens.] < *P. Z. S.*, xxxv, 1867, p. 687.

1870. Nathusius, W. v. Ueber die Eischalen von Æpyornis, Dinornis, Apteryx und einigen Crypturiden. < *Zeitschr. f. wiss. Zool.*, xxi, 1870, pp. 330–335, pll. xxv, xxvi.

Cf. *Ibis*, 1871, pp. 454, 455.

1874. Alix, E. Mémoire sur l'ostéologie et la Myologie du Nothura major. < *Gerv. Journ. de Zool.*, iii, 1874, pp. 167–214, 253–285, pll. viii, xi.

"Ou peut résumer cette comparaison [du Squelette du *Nothura* avec celui des Vertébrés et des Oiseaux] en disant que les Tinamidés ressemblent davantage aux Struthidés par leur tête, aux Gallinacés par le thorax et les ailes, au Râles par le bassin, et qu'en même temps ils offrent quelques affinités avec les Échassiers pressirostres et longirostres de Cuvier.

"Un examen détaillé des os et des muscles du *Nothura major* nous amène à conclure que si les Tinamidés ont de grandes ressemblances soit avec les Autruches, soit avec les Gallinacés, on ne peut pourtant pas les confondre avec l'un ou l'autre de ces deux groupes, et qu'ils diffèrent encore plus des Rallidés, des Échassiers pressirostres, longirostres et des Palmipèdes, auxquels ils ne se rattachent que par des traits isolés. Nous sommes ainsi conduits, tout en tenant compté de ces affinités, a partager l'opinion de Lherminier, qui fasait de ces Oiseaux un groupe séparé."

1876. Alix, E. Sur la Myologie du Rhynchotus rufescens. < *Gerv. Journ. de Zool.*, v, 1876, pp. 411, 412.

Vérification que les particuliarités que l'auteur signale dans les muscles du *Nothura* (*op. cit.*, iii, pp. 167, 252, 1872) se retrouvent chez les autres Tinamidés.

Rheidæ.

1808. HAMMER, F. L. Observations Sur le Touyou ou Autruche d'Amérique (Struthio [Rhea] americanus. Lin.), faites à Strasbourg en janvier 1806. < *Ann. du Mus. d'Hist. Nat.*, xii, 1808, pp. 427–433, pl. 39.

Avec des observations sur ce que les naturalistes en ont dit.

1834. MARTIN, W. [Notes on Anatomy of the Rhea (R. americana, Vieill.) and Cassowary (Casuarius emeu, Lath.).] < *P. Z. S.*, ii, 1834, p. 9.

1837. DARWIN, C. [On the Habits of the American Ostriches (Rhea darwinii).] < *P. Z. S.*, v, 1837, pp. 35, 36.

1837. GOULD, J. [On a New Rhea (darwinii) from Mr. Darwin's Collection.] < *P. Z. S*,, v, 1837, p. 35.

1837. [EDITORIAL.] Notice respecting [D'Orbigny's claim of his prior name, R. pennata, for the] Rhea darwini Gould. < *Charlesw. Mag. Nat. Hist.*, i, 1837, p. 504.

1838. [EDITORIAL.] Rhea. < *Mag. of Zool. and Bot.*, ii, 1838, pp. 92, 93.

Merely a note on the existence of a second species, discovered by Darwin.

1839. GOULD, J. Eine neue Rhea [darwini] aus Patagonien von Darwin. < *Oken's Isis*, Bd. xxxii, 1839, p. 144.

P. Z. S., Marz 14, 1837, p. 35.

1841. HERON, R. [On the Breeding of Rhea americana in Confinement.] < *P. Z. S.*, ix, 1841, pp. 79, 80.

1842. DERBY, *The Earl of.* [Letter relating to the Hatching of Rhea americana in Confinement, &c.] < *P. Z. S.*, x, 1842, p. 147.

1842. HERON, R. [On the breeding of Rhea americana in Confinement.] < *Ann. Mag. Nat. Hist.*, ix, 1842, pp. 344, 345.

From *P. Z. S.*, Oct. 12, 1841, pp. 79, 80.

1856. GOSSE, L. A. Questionnaire relatif a l'autruche et au Nandou, ou autruche d'Amérique [Rhea americana]. < *Bull. Soc. d'Acclim.*, iii, 1856, pp. 290–297.

1857. WYMAN, J. [Remarks on exhibition of a skeleton of a young South American Ostrich (Rhea americana).] < *Proc. Boston Soc. Nat. Hist.*, vi, 1857, p. 127.

1858. VAVASSEUR, —. Note sur le Nandou ou Autruche d'Amérique [Rhea americana] et sur les moyens de l'amener a l'état de domesticité et de l'acclimater en France. < *Bull. Soc. Acclim.*, v, 1858, pp. 388–394.

1860. DE MOUSSY, M. Domestication du Nandou ou Autruche d'Amérique [Rhea americana]. < *Bull. Soc. Acclim.*, vii, 1860, pp. 182–186.

1860. SCLATER, P. L. On the Rheas in the Society's Menagerie, with Remarks on the known species of Struthious Birds. < *P. Z. S.*, Apr. 24, 1860, pp. 207–211, figg. 1–3.

Rhea macrorhyncha, sp. n., p. 207, fig. 1; *R. americana*, fig. 2; *R. darwini*, fig. 3. The remarks relate also to *Struthio*, 1 sp.; *Casuarius*, 5 spp.; *C. bicarunculatus*, sp. n., p. 211; and *Dromœus irroratus*. The living species of Struthious birds are supposed to be not fewer than 14 or 15 in number.

1860. SCLATER, P. L. On the Rheas in the Society's Menagerie, with Remarks on the known species of Struthious Birds. < *Ann. Mag. Nat. Hist.*, 3d ser., vi, 1860, pp. 142–146, figg. 3.

From *P. Z. S.*, Apr. 24, 1860, pp. 207–211, *q. v.*

1862. SCLATER, P. L. Remarks on the late Increase of our Knowledge of the Struthious Birds. < *Rep. Brit. Assoc. Adv. Sci. for* 1861, 1862, (*Misc. Comm.*), pp. 158, 159.

Concluding with a "Tabula Avium Struthionum," in which 16 spp. are enumerated.

1863. BÖCKING, A. Monographie des Nandu oder südamerikanischen Strausses [Rhea americana]. < *Troschel's Arch.*, 1863, pp. 212-—.

Mir noch nicht selbst zur Ansicht.

1863. BÖCKING, A. De | Rhea Americana. | — | Dissertatio zoologica | qvam | svmmorvm in philosophia honorvm | avctoritate amplissimi | philosophorvm ordinis | in Vniversitate Fridericia Gvelelmia Rhenana | rite obtinendorvm cavsa | vna cvm sentensiis controversis | die XIV. Mensis Febrvarii anni MDCCCLXIII | pvblice defendet | Adolphvs Böcking | Rhenanvs. | — | . . . | Bonnae | typis Caroli Georgi. 1 vol. 8vo. 3 p. ll., pp. 32.

De quo libello scripsit Hartlaubius (Bericht, 1863, p. 29): „Wichtiger Beitrag zu unserer Kenntniss des Amerikanischen Strausses. Der Verfasser lebte längere Zeit in den La Plata Provinzen und scheint Lebensweise, Fortpflanzung, Verbreitung, Zähmung gut beobachtet zu haben. *Rhea Darwini* wird sehr irrthümlich als Lokalrasse von *Rh. americana* behandelt."

1863. LEADBEATER, B. [Exhibition of specimens of eggs of a species of Rhea.] < *P. Z. S.*, xxxi, 1863, p. 1.

1865. CRISP, E. On the Anatomy of the Struthionidæ, Ostriches, Rheas, and Casuaries. < *Rep. Brit. Assoc. Adv. Sci. for* 1864, 1865, (*Misc. Comm.*), pp. 92, 93.

Relating to the important differences in the visceral anatomy of these birds *inter se.* A note by E. Bartlett, on the characters of the eggs of *Struthionidæ.* An *Apteryx* weighing 60 ounces laid a 14-ounce egg, relatively the largest known in ornithology.

1865. SCHMIDT, MAX. [Einen Weiblichen amerikanischen Strauss (Rhea americana).] < *Zool. Gart.*, vi, 1865, p. 308.

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Note.—Index to Bibliography is unavoidably deferred.—Ed.

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